# Fugitive Emissions Monitoring Plan

Prepared in Accordance With 40 CFR 60 – Subpart OOOOa

Hilcorp Alaska, LLC

Alaska



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This plan is organized such that the applicable regulation is shown in italics with a smaller font size. How the facility complies with the regulation is discussed following the listed requirement.

#### **FUGITIVE EMISSIONS MONITORING PLAN**

This Fugitive Emissions Monitoring Plan has been prepared in accordance with 40 CFR 60.5397a(b) for all affected facilities in the "company-defined area".

40 CFR 60.5397a(b) You must develop an emissions monitoring plan that covers the collection of fugitive emissions components at well sites and compressor stations within each company-defined area in accordance with paragraphs \$60.5397a(c) and (d).

#### **Company Information**

Company:Hilcorp Alaska, LLCMailing Address:3800 Centerpoint DriveSuite 1400Anchorage, AK 99503Company-Defined Area:AlaskaFacility Site Name(s):See Appendix A.

40 CFR 60.5397a(d) Each fugitive emissions monitoring plan must include the elements specified in paragraphs §60.5397a(d)(1) through (4), at a minimum, as applicable.

Appendix A & B includes a list of affected facilities and the site-specific elements of the Fugitive Emissions Monitoring Plan, as follows:

- 1) Sitemap.
- 2) A defined observation path that ensures that all fugitive emissions components are within sight of the path. The observation path must account for interferences.
- 3) [NOT APPLICABLE]
- 4) Your plan must also include the written plan developed for all of the fugitive emission components designated as difficult-to-monitor in accordance with paragraph §60.5397a(g)(3)(i), and the written plan for fugitive emission components designated as unsafe-to-monitor in accordance with paragraph §60.5397a(g)(3)(ii).

The facility sitemap included in Appendix B for each affected facility shows the observation path to be used by the OGI surveyor to ensure that all fugitive emissions components are within sight and can be monitored without interferences or obstructions while not compromising the safety of the surveyor. In addition, a list of any components designated as difficult-to-monitor and unsafe-to-monitor is included in Appendix B with a written plan to ensure compliance with the requirements.

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#### **GENERAL APPLICABILITY**

#### **Affected Facilities**

Regulations established under 40 CFR 60 – Subpart OOOOa aim to reduce leaks of Volatile Organic Compounds (VOCs) and Greenhouse Gases (GHGs) from the collection of fugitive emission components from affected well site facilities and compressor stations that commence construction, modification, or reconstruction after September 18, 2015. This program requires that affected facilities develop and maintain a fugitive emissions monitoring plan which outlines the procedures operators will use to identify fugitive emissions leaks and ensure that they are repaired properly and in a timely manner.

A **Fugitive emissions component** means any component that has the potential to emit fugitive emissions of methane or VOC at a well site or compressor station, including but not limited to valves, connectors, pressure relief devices, open-ended lines, flanges, covers and closed vent systems not subject to §60.5411a, thief hatches or other openings on a controlled storage vessel not subject to §60.5395a, compressors, instruments, and meters. Devices that vent as part of normal operations, such as natural gas-driven pneumatic controllers or natural gas-driven pumps, are not fugitive emissions components, insofar as the natural gas discharged from the device's vent is not considered a fugitive emission. Emissions originating from other than the vent, such as the thief hatch on a controlled storage vessel, would be considered fugitive emissions. [40 CFR 60.5430a]

#### Well Site Facility

A **Well site** means one or more surface sites that are constructed for the drilling and subsequent operation of any oil well, natural gas well, or injection well. For purposes of the fugitive emissions standards at §60.5397a, well site also means a separate tank battery surface site collecting crude oil, condensate, intermediate hydrocarbon liquids, or produced water from wells not located at the well site (e.g., centralized tank batteries). [40 CFR 60.5430a]

40 CFR 60.5365a(i) Except as provided in 60.5365a(i)(2), the collection of fugitive emissions components at a well site, as defined in 60.5430a, is an affected facility.

40 CFR 60.5365a(i)(2) A wellsite that only contains one or more wellheads is not an affected facility under this subpart. The affected facility status of a separate tank battery surface site has no effect on the affected facility status of a well site that only contains one or more wellheads.

40 CFR 60.5365a(i)(3) For purposes of 60.5397a, a "modification" to a well site occurs when:

40 CFR 60.6365a(i)(3)(i) A new well is drilled at an existing well site;

40 CFR 60.6365a(i)(3)(ii) A well at an existing well site is hydraulically fractured; or

40 CFR 60 6365a(i)(3)(iii) A well at an existing well site is hydraulically refractured.

#### **Compressor Station**

A **Compressor station** means any permanent combination of one or more compressors that move natural gas at increased pressure through gathering or transmission pipelines, or into or out of storage. This includes, but is not limited to, gathering and boosting stations and transmission compressor stations. The combination of one or more compressors located at a well site, or located at an onshore natural gas processing plant, is not a compressor station for purposes of §60.5397a. [40 CFR 60.5430a]

40 CFR 60.5365a(j) The collection of fugitive emissions components at a compressor station, as defined in §60.5430a, is an affected facility. For purposes of §60.5397a, a "modification" to a compressor station occurs when:

40 CFR 60.5365a(j)(1) An additional compressor is installed at a compressor station; or

40 CFR 60.5365a(j)(2) One or more compressors at a compressor station is replaced by one or more compressors of greater total horsepower than the compressor(s) being replaced. When one or more compressors is replaced by one or more compressors of an equal or smaller total horsepower than the compressor(s) being replaced, installation of the replacement compressor(s) does not trigger a modification of the compressor station for purposes of §60.5397a.

#### 1.0 - FREQUENCY FOR CONDUCTING SURVEYS

40 CFR 60.5397a(c)(1) Frequency for conducting surveys. Surveys must be conducted at least as frequently as required by paragraphs §60.5397a(f) and (g).

#### 1.1 - Initial Surveys

A survey of fugitive emissions components at affected facilities will be conducted initially within the required timeframes outlined in 40 CFR 60.5397a(f).

40 CFR 60.5397a(f)(1) You must conduct an initial monitoring survey within 60 days of the startup of production, as defined in §60.5430a, for each collection of fugitive emissions components at a new well site or by June 3, 2017, whichever is later. For a modified collection of fugitive emissions components at a well site, the initial monitoring survey must be conducted within 60 days of the first day of production for each collection of fugitive emission components after the modification or by June 3, 2017, whichever is later. Notwithstanding the preceding deadlines, for each collection of fugitive emissions components at a well site located on the Alaskan North Slope, as defined in §60.5430a, that starts up production between September and March, you must conduct an initial monitoring survey within 6 months of the startup of production for a new well site, within 6 months of the first day of production after a modification of the collection of fugitive emission components, or by the following June 30, whichever is later.

40 CFR 60.5397a(f)(2) You must conduct an initial monitoring survey within 60 days of the startup of a new **compressor station** for each new collection of fugitive emissions components at the new compressor station or by June 3, 2017, whichever is later. For a modified collection of fugitive components at a compressor station, the initial monitoring survey must be conducted within 60 days of the modification or by June 3, 2017, whichever is later.

The **startup of production** means the beginning of initial flow following the end of flowback when there is continuous recovery of salable quality gas and separation and recovery of any crude oil, condensate or produced water. [40 CFR 60.5430a]

The **Alaskan North Slope** means the approximately 69,000 square-mile area extending from the Brooks Range to the Arctic Ocean.

#### 1.2 - Periodic Surveys

Once the initial survey of fugitive emissions components has been completed, subsequent surveys will be performed at the frequencies specified in 40 CFR 60.5397a(g). Exceptions noted below are outlined in Section 1.2.1 of this plan.

40 CFR 60.5397a(g) A monitoring survey of each collection of fugitive emissions components at a well site or at a compressor station must be performed at the frequencies specified in paragraphs §60.5397a(g)(1) and (2), with the exceptions noted in paragraphs §60.5397a(g)(3) and (4).

40 CFR 60.5397a(g)(1) A monitoring survey of each collection of fugitive emissions components at a **well site** within a company-defined area must be conducted at least semiannually after the initial survey. Consecutive semiannual monitoring surveys must be conducted at least 4 months apart. A monitoring survey of each collection of fugitive emissions components at a well site located on the Alaskan North Slope must be conducted at least annually. Consecutive annual monitoring surveys must be conducted at least 9 months apart.

40 CFR 60.5397a(g)(2) A monitoring survey of the collection of fugitive emissions components at a **compressor station** within a company-defined area must be conducted at least quarterly after the initial survey. Consecutive quarterly monitoring surveys must be conducted at least 60 days apart.

40 CFR 60.5397a(g)(5) The requirements of paragraph §60.5397a(g)(2) of this section are **waived** for any collection of fugitive emissions components at a **compressor station** located within an area that has an average calendar month temperature below 0°Fahrenheit for two of three consecutive calendar months of a quarterly monitoring period. The calendar month temperature average for each month within the quarterly monitoring period must be determined using historical monthly average temperatures over the previous three years as reported by a National Oceanic and Atmospheric Administration source or other source approved by the Administrator. The requirements of paragraph §60.5397a(g)(2) of this section shall not be waived for two consecutive quarterly monitoring periods.

#### 1.2.1 - Difficult-to-Monitor & Unsafe-to-Monitor Components

Exceptions for the frequencies outlined above have been made for components identified as difficult-to-monitor or unsafe-to-monitor. **Difficult-to-monitor** fugitive emissions components are those that cannot be monitored without elevating the personnel more than 2 meters above the surface. **Unsafe-to-monitor** fugitive emissions components are those that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a survey. Any components designated as difficult-to-monitor or unsafe-to-monitor at an affected facility have been identified in Appendix B, and a specific monitoring plan with monitoring frequencies for those components are included herein. A sample plan is included on the following page. *See Figure 1-1*.

40 CFR 60.5397a(g)(3) Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as **difficult-to-monitor**. Fugitive emissions components that are designated difficult-to-monitor must meet the specifications of paragraphs §60.5397a(g)(3)(i) through (iv).

40 CFR 60.5397a(g)(3)(i) A written plan must be developed for all of the fugitive emissions components designated difficult-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs §60.5397a(b), (c), and (d).

40 CFR 60.5397a(g)(3)(ii) The plan must include the identification and location of each fugitive emissions component designated as difficult-to-monitor.

40 CFR 60.5397a(g)(3)(iii) The plan must include an explanation of why each fugitive emissions component designated as difficult-to-monitor is difficult-to-monitor.

40 CFR 60.5397a(g)(3)(iv) The plan must include a schedule for monitoring the difficult-to-monitor fugitive emissions components at least once per calendar year.

40 CFR 60.5397a(g)(4) Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be designated as **unsafe-to-monitor**. Fugitive emissions components that are designated unsafe-to-monitor must meet the specifications of paragraphs §60.5397a(g)(4)(i) through (iv).

40 CFR 60.5397a(g)(4)(i) A written plan must be developed for all of the fugitive emissions components designated unsafe-to-monitor. This written plan must be incorporated into the fugitive emissions monitoring plan required by paragraphs \$60.5397a(b)\$, (c), and (d).

40 CFR 60.5397a(g)(4)(ii) The plan must include the identification and location of each fugitive emissions component designated as unsafe-to-monitor.

40 CFR 60.5397a(g)(4)(iii) The plan must include an explanation of why each fugitive emissions component designated as unsafe-to-monitor is unsafe-to-monitor.

40 CFR 60.5397a(g)(4)(iv) The plan must include a schedule for monitoring the fugitive emissions components designated as unsafe-to-monitor.

## **Addendum to Fugitive Emissions Monitoring Plan Difficult-to-Monitor & Unsafe-to-Monitor Components** Company Name: Facility Name: Difficult-to-Unsafe-to-**Fugitive Emission** Monitoring **Fugitive Fugitive Emission Location** Monitor?1 Monitor?2 Reason<sup>3</sup> Emission# Component Frequency4 (Y/N) (Y/N) Comments 1 Fugitive emissions components that cannot be monitored without elevating the monitoring personnel more than 2 meters above the surface may be designated as difficult-to-Fugitive emissions components that cannot be monitored because monitoring personnel would be exposed to immediate danger while conducting a monitoring survey may be Explanation of why each fugitive emissions components is difficult-to-monitor or unsafe-to-monitor. <sup>4</sup>Difficult-to-monitor components must be monitored atleast once per calendar year. Unsafe-to-monitor components must be monitored at a frequency determined by the surveyor.

Figure 1-1: Sample of Difficult-to-Monitor & Unsafe-to-Monitor Components Monitoring Plan

#### 2.0 – PROCEDURES FOR CONDUCTING SURVEYS

#### 2.1 - Technique for Determining Fugitive Emissions

40 CFR 60.5397a(c)(2) Technique for determining fugitive emissions (i.e., Method 21 at 40 CFR part 60, appendix A-7, or optical gas imaging).

Surveys of fugitive emissions components, along with confirmation of repair, at affected facilities identified within this plan will be conducted using the Optical Gas Imaging (OGI) method. Confirmation of repair of any identified fugitive emissions may be made using Section 8.3.3 of Method 21 (Soap Bubbles Method), if appropriate.

#### 2.2 - Fugitive Emissions Detection Equipment

40 CFR 60.5397a(c)(3) Manufacturer and model number of fugitive emissions detection equipment to be used.

Surveys of fugitive emissions components using optical gas imaging will be conducted using a FLIR GFx320 infrared camera. However, if a different infrared camera is used during a survey, that camera would be noted on the survey record. This change would also be noted as a deviation from the monitoring plan.

40 CFR 60.5397a(c)(7) If you are using optical gas imaging, your plan must also include the elements specified in paragraphs §60.5397a(c)(7)(i) through (vii).

#### 2.2.1 - Optical Gas Imaging Initial Verification

40 CFR 60.5397a(c)(7)(i) Verification that your optical gas imaging equipment meets the specifications of paragraphs §60.5397a(c)(7)(i)(A) and (B). This verification is an initial verification and may either be performed by the facility, by the manufacturer, or by a third party. For the purposes of complying with the fugitives emissions monitoring program with optical gas imaging, a fugitive emission is defined as any visible emissions observed using optical gas imaging.

In accordance with these regulations, FLIR, via third party testing, has verified that the FLIR GFx320 camera meets the specifications listed below:

- A) Your optical gas imaging equipment must be capable of imaging gases in the spectral range for the compound of highest concentration in the potential fugitive emissions.
- B) Your optical gas imaging equipment must be capable of imaging a gas that is half methane, half propane at a concentration of 10,000 ppm at a flow rate of ≤60g/hr from a quarter inch diameter orifice.

These initial parameters have been independently tested and verified by the National Physical Laboratory (NPL) and deemed compliant with the sensitivity standard for optical gas imaging equipment. See Figure 2-1 on the next page for the complete verification document.

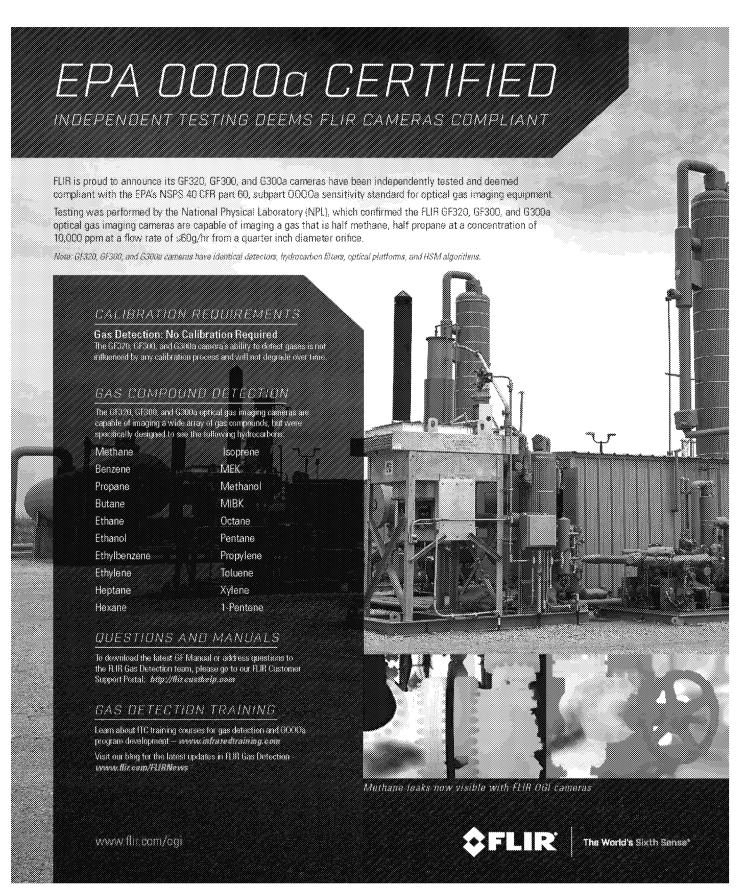


Figure 2-1: FLIR Optical Gas Imaging Verification

#### 2.2.2 - Procedure for Daily Verification Check

40 CFR 60.5397a(c)(7)(ii) Procedure for a daily verification check.

Prior to beginning every survey, the surveyor must provide assurance that the optical gas imaging camera is operating properly. According to FLIR, it is not recommended to use any specific type of gas release to ensure the camera is capable of detecting the intended gas compounds. The ability to detect gases is not influenced by any calibration process and will not degrade over time. Therefore, as long as the camera can accurately complete the following daily verification checklist (See Figure 2-2), it ensures the camera is functioning properly and the survey can commence. Confirmation of the daily verification check will be included as part of the survey record.

	Daily Verification Checklist for Optical Gas Imag	ging Camera
•	Powers on in a timely manner (cooldown mode should take approximately 10 minutes or less)	Ø
•	Produces an infrared (IR) image	
•	Displays zero error messages	Ø
•	Focuses properly	Ø
•	Engages in High Sensitivity Mode (HSM)	$\square$

Figure 2-2: Procedure for Daily Verification Check

#### 2.2.3 - Procedure for Determining Maximum Viewing Distance & Wind Speed

40 CFR 60.5397a(c)(7)(iii) Procedure for determining the operator's maximum viewing distance from the equipment and how the operator will ensure that this distance is maintained.

40 CFR 60.5397a(c)(7)(iv) Procedure for determining maximum wind speed during which monitoring can be performed and how the operator will ensure monitoring occurs only at wind speeds below this threshold.

Prior to beginning every survey, the surveyor will determine a maximum distance and wind speed at which the gas can be seen. To do so, the surveyor will perform a simple propane gas release test, as defined by FLIR, to verify the camera is functioning properly and to keep the surveyor within the maximum controlled distance for the environment.

The following equipment will be used to perform the test:

- Propane Bottle
- Propane Hose with Regulator
- Propane Adapter
- Flowmeter
- Laser Range Finder
- Anemometer or National Oceanic and Atmospheric Administration (NOAA) Application
- FLIR GFx320 Camera

The following steps will be taken to perform the test:

- 1) Properly assemble the equipment as needed.
- 2) Release gas from the propane bottle while using a flowmeter to determine the flowrate.
- 3) Adjust the regulator until the flowmeter indicates a flowrate of approximately 60 g/hr (0.508 L/min) of propane which is the propane gas rate verified by FLIR.
- 4) Ensure the gas can be seen with the camera.
- 5) The surveyor will move away from the gas source until the gas can almost no longer be seen with the camera.
- 6) Measure the distance from the surveyor to the propane bottle with a laser range finder. This distance will be the maximum distance that the surveyor can be away from any equipment.
- 7) Measure the wind speed with an anemometer or by using the NOAA application.
- 8) Record this wind speed as the maximum wind speed in the survey record log.

Based on the wind speed the day of the survey, the surveyor will ensure monitoring occurs only at or below the maximum distance that was documented for that particular survey. It should be noted that the maximum distance and wind speed still does not guarantee compliance and that no leaks are present at the time of the survey.

#### 2.2.4 - Procedure for Conducting Surveys

40 CFR 60.5397a(c)(7)(v) Procedures for conducting surveys, including the items specified in paragraphs  $\S60.5397a(c)(7)(v)(A)$  through (C).

During the monitoring survey, various environmental conditions could be present which could have a significant impact on the ease in which fugitive emissions can be visually detected including inadequate thermal background, adverse monitoring conditions, and monitoring interferences. Before beginning each survey, the surveyor must observe his or her surroundings, identify any potential issues, and make necessary adjustments to ensure accuracy of the survey.

One potential condition that could impact the survey is inadequate thermal background. An adequate thermal background should be present to view potential fugitive emissions. Optical gas imaging is more effective when there is good thermal contrast between a gas cloud and a background scene. Therefore, the lesser the temperature difference between the gas and the apparent temperature from the background scene, then the harder it will be for the surveyor to see the gas. In addition, the surveyor must be aware of possible adverse monitoring conditions and interferences that may occur when performing the survey. Some examples may include wind, steam, rain, dust, reflections (from heat generating equipment), heat, vibration, etc. When any of these issues are present, it becomes difficult to monitor the fugitive emissions components and could prevent them from being easily seen.

In order to address these problems and ensure adequate survey results, the surveyor will utilize their training and experience with the camera to make necessary adjustments to ensure a successful survey. The following are some of the methods that can be used:

- Perform Surveys on Days with Greater Temperature Differential
- Use Thermal Tuning
- Use High Sensitivity Mode (HSM)
- Change Polarity
- Change Viewing Angle
- Non Uniformity Correction (NUC) Process
- Decrease distance to component if safe

It should be noted that the weather conditions must be documented on the fugitive emissions monitoring survey log along with any deviations that occurred.

#### 2.2.5 - Surveyor Training & Experience

40 CFR 60.5397a(c)(7)(vi) Training and experience needed prior to performing surveys.

To perform fugitive emissions monitoring surveys using OGI detection equipment, the surveyor must be qualified based on training and experience. Qualification will be achieved by either obtaining an Infrared Thermography Certification or Optical Gas Imaging Certification from the Infrared Training Center (ITC) courses, completing thorough in-house training, and/or a combination of field and thermography experience. The training and experience of the surveyor will be documented during every survey.

#### 2.2.6 - Procedures for Calibration & Maintenance

40 CFR 60.5397a(c)(7)(vii) Procedures for calibration and maintenance. At a minimum, procedures must comply with those recommended by the manufacturer.

#### Standard Calibration

The FLIR GFx320 infrared camera is initially calibrated by the manufacturer which requires a unique calibration procedure, with calibration constants and related functionality stored in the camera's firmware. FLIR's Standard Calibration service provides assurance that each camera meets its published calibration and accuracy specifications. To ensure accuracy, this service utilizes traceable reference standards maintained by the SP Technical Research Institute of Sweden and the National Institute of Standards and Technology (NIST). A Standard Calibration certificate/statement is available. No recalibration is recommended for purposes of detecting gas. The ability to detect gases is not influenced by the calibration and will not degrade over time. The FLIR GFx320 self-calibrates upon start-up when the camera is powered on. Prior to every survey, the surveyor will ensure the detection equipment is working properly by utilizing the daily verification check outlined in Section 2.2.2.

#### **Standard Maintenance**

FLIR recommends maintenance on the camera if the cool down period on the camera lasts longer than approximately 10 minutes. This is a helpful indication that the camera should be serviced. Also, if a daily visual verification cannot be accurately completed, then the camera should be sent in to the manufacturer for maintenance.

#### 3.0 – IDENTIFICATION & REPAIR OF FUGITIVE EMISSIONS COMPONENTS

#### 3.1 - Procedures & Timeframes for Identifying & Repairing Fugitive Emissions Components

40 CFR 60.5397a(c)(4) Procedures and timeframes for identifying and repairing fugitive emissions components from which fugitive emissions are detected, including timeframes for fugitive emission components that are unsafe to repair. Your repair schedule must meet the requirements of paragraph §60.5397a(h) at a minimum.

40 CFR 60.5397a(h) Each identified source of fugitive emissions shall be repaired or replaced in accordance with paragraphs  $\S60.5397a(h)(1)$  and (2).

40 CFR 60.5397a(h)(3)(ii) For each repair that cannot be made during the monitoring survey when the fugitive emissions are initially found, a digital photograph must be taken of that component or the component must be tagged for identification purposes. The digital photograph must include the date that the photograph was taken, must clearly identify the component by location within the site (e.g., the latitude and longitude of the component or by other descriptive landmarks visible in the picture).

During the survey, each identified source of detected fugitive emissions will be logged by the surveyor on the Fugitive Emissions Detection Record Log (See Figure 3-1) and discussed with onsite personnel, if available. If personnel available onsite, an attempt to repair or replace each source of fugitive emissions will be made immediately. If a repair or replacement is able to be made while onsite, the component will be resurveyed using the OGI equipment to confirm that there are no fugitive emissions and the appropriate record will be made by the surveyor. If a repair or replacement cannot be made immediately, a digital photograph or video will be taken by the surveyor to be maintained in the survey record. It will also be provided to the operator such that the component can be identified for repair. The component may also be physically marked for ease of operator identification. In addition, a Fugitive Emissions Repair Record Log will be provided to the operator to properly document the repair (See Figure 3-2).

40 CFR 60.5397a(h)(1) Each identified source of fugitive emissions shall be repaired or replaced as soon as practicable, but no later than 30 calendar days after detection of the fugitive emissions.

40 CFR 60.5397a(h)(2) If the repair or replacement is technically infeasible, would require a vent blowdown, a compressor station shutdown, a well shutdown or well shut-in, or would be unsafe to repair during operation of the unit, the repair or replacement must be completed during the next scheduled compressor station shutdown, well shutdown, well shut-in, after a planned vent blowdown or within 2 years, whichever is earlier.

If repair cannot be made during the survey, repair or replacement of each identified source of fugitive emissions will be made within 30 days unless it is determined to be technically infeasible, in which case the reason for infeasibility would be recorded, and the record log would remain open until repair or replacement is made. If repair is delayed past 30 days, the reason for delay will be recorded.

#### 3.2 - Procedures & Timeframes for Verifying Fugitive Emissions Components Repairs

40 CFR 60.5397a(c)(5) Procedures and timeframes for verifying fugitive emission component repairs.

40 CFR 60.5397a(h)(3)(i) For repairs that cannot be made during the monitoring survey when the fugitive emissions are initially found, the operator may resurvey the repaired fugitive emissions components using either Method 21 or optical gas imaging within 30 days of finding such fugitive emissions.

40 CFR 60.5397a(h)(3)(iii) Operators that use Method 21 to resurvey the repaired fugitive emissions components are subject to the resurvey provisions specified in paragraphs §60.5397a(h)(3)(iii)(A) and (B).

40 CFR 60.5397a(h)(3)(iv) Operators that use optical gas imaging to resurvey the repaired fugitive emissions components, are subject to the resurvey provisions specified in paragraphs §60.5397a(h)(3)(iv)(A) and (B).

Although it states in 40 CFR 60.5397a(h)(3)(i) that the resurvey must be made within 30 days of <u>finding</u> the fugitive emissions, EPA clearly states in Section V.G. and F.1.e of the Supplementary Information in the Federal Register notice published June 3, 2016 that "a resurvey of the repaired component must be made within 30 days of the repair" "to allow time for contractors or designated OGI personnel to perform the resurvey." Therefore, it can be reasonably concluded that a resurvey is required within 30 days of the repair and not within 30 days of finding the fugitive emissions.

Once repair or replacement of each identified source of fugitive emissions is made, the operator will confirm that there are no fugitive emissions by either resurveying the component using optical gas imaging or utilizing section 8.3.3 of Method 21 (Soap Bubbles Method) within 30 days of making the repair or replacement. The method of confirmation will be documented on the Fugitive Emissions Repair Record Log (See Figure 3-2).

The Soap Bubbles Method will not be utilized on components with continuous moving parts, surface temperatures above the boiling point or below the freezing point of the soap solution or other components on which it would be difficult to spray the soap solution or see soap bubbles (i.e. tank thief hatches). If the Soap Bubbles Method can be used, the procedures below will be followed:

#### EPA Method 21

8.3.3 Alternative Screening Procedure.

8.3.3.1 A screening procedure based on the formation of bubbles in a soap solution that is sprayed on a potential leak source may be used for those sources that do not have continuously moving parts, that do not have surface temperatures greater than the boiling point or less than the freezing point of the soap solution, that do not have open areas to the atmosphere that the soap solution cannot bridge, or that do not exhibit evidence of liquid leakage. Sources that have these conditions present must be surveyed using the instrument technique of Section 8.3.1 or 8.3.2.

8.3.3.2 Spray a soap solution over all potential leak sources. The soap solution may be a commercially available leak detection solution or may be prepared using concentrated detergent and water. A pressure sprayer or squeeze bottle may be used to dispense the solution. Observe the potential leak sites to determine if any bubbles are formed. If no bubbles are observed, the source is presumed to have no detectable emissions or leaks as applicable. If any bubbles are observed, the instrument techniques of Section 8.3.1 or 8.3.2 shall be used to determine if a leak exists, or if the source has detectable emissions, as applicable.

If the confirmation of the repair cannot be made using the Soap Bubbles Method, optical gas imaging will be used and all procedures set forth in this plan will be utilized.

							Monitorir	ng Survey Record Log				
Con	npany Name:				-	ility Name:		······			Page #:	
Begin Survey Date:	Begin Survey Time:	End Survey Date:	End Survey Time:	Name of Surveyor(s):	Surveyor's Training:	Amb Temp. (°F):	Sky Conditions:	Max. Wind Speed (mph):	OGI Camera Make/Model:	Deviations from Plan? (Y/N) (if yes, explain below)	Verification Check Completed? (Y/N)	Daily Photo ID:
Reaso	ns for Deviat	ions from Pl	an (If any):									-
Fugitive Emission#	Fugitive Emission Component		Fugitive Emission Location			Difficult-to- Monitor? <sup>1</sup> Unsafe-to- Monitor? <sup>2</sup> During Origina (Y/N) (Y/N) Survey? (Y/N)				Photo ID/ Video ID/ TAG ID <sup>3</sup>		
	ssions compor be surveyed an		nnot be moni	tored without	elevating th	e monitoring	personnel mo	re than 2 meter	s above the surfac	ce may be designa	ted as difficul	t-to-monitor.
<sup>2</sup> Fugitive emi designated as <sup>3</sup> If the compo the location o	ssions compo s unsafe-to-mo	nents that ca enitor. *Only i eaired the sar ent that must	n <b>as to be sur</b> ne day as de be repaired.	veyed as speci tection, then a	<i>ified in the fu</i> a digital phot	<i>i<b>gitive emissic</b></i> tograph or vi	ons monitoring	plan	ediate danger wh		_	

Figure 3-1: Sample of Fugitive Emissions Detection Record Log

					Fugit	ive Emiss	sions Mo	nitoring S	urvey				
					Fugit	tive Emis	sions Rep	oair Reco	rd Log				
C			*Log should	d ONLY be co	mpleted if Fug				be repaired d	uring the origin	al survey.	D #-	
Original Su	any Name:						ility Name:		N) (if ves e	xplain below)		Page #:	
	•					-				Apidiii Below,			
Reasons	for Deviati	ons from P	lan (If any):										_
													-
**ONLY comp	lete this sect	tion in the b	oxes below if	the Optical G	Gas Imaging (C	OGI) Method 1	was used dur	ing the resurv	rey:		Verification	T	1
	Begîn	Begin Survev	End Survey	End Survey	Name of	Surveyor's	Amb Temp.	Sky	Max. Wind	OGI Camera	Check	Daily Photo ID:	
	Survey Date:	Time:	Date:	Time:	Surveyor(s):	Training:	(°F):	Conditions:	Speed (mph):	Make/Model:	Completed?	Daily Photo ID:	
											(Y/N)		
[													
						Delay of			Date of				Confirmation
Fugitive Emission#	Fugitive Emission Component		Fugitive Emission Location		Repair?1	Explanation for Delay of Repair <sup>1</sup>		Successful Repair <sup>1</sup>	Repair	r Method <sup>2</sup> Confirmation Repair Date		Repair Method <sup>4</sup>	
1Must be see	sired or re-	laced as se	on as practic	abla but	Later than 20	) calendar di	aus after det	action of the	fugitive on i-	ions If the	nis is not med	within 30 days,	than include
explanation fo										nons. II the rep	air is not made	e within 30 days,	then include an
				-	emissions con		. tighten wrer	ich, replace e	quipment, etc	.)			
i					s were no long lethod 21 (Soa		ath a d\						
Eitner Optica	ı das imagi	ing (OOI) Me				p Bubbles M							

Figure 3-2: Sample of Fugitive Emissions Repair Record Log

#### 4.0 - RECORDKEEPING & REPORTING REQUIREMENTS

#### 4.1 - Recordkeeping Requirements

40 CFR 60.5397a(c)(6) Records that will be kept and the length of time records will be kept.

40 CFR 60.5420a(c) Recordkeeping requirements. You must maintain the records identified as specified in §60.7(f) and in paragraphs §60.5420a(c)(1) through (16). All records required by this subpart must be maintained either onsite or at the nearest local field office for at least 5 years. Any records required to be maintained by this subpart that are submitted electronically via the EPA's CDX may be maintained in electronic format.

Records required by 40 CFR 60.5420a(c) will be maintained using the logs included within this Fugitive Emissions Monitoring Plan (See Appendix C) or similar. Required records will be maintained either onsite or at the nearest local field office for at least 5 years. The records must include the following:

40 CFR 60.5420a(c)(15) For each collection of fugitive emissions components at a well site and each collection of fugitive emissions components at a compressor station, the records identified in paragraphs §60.5420a(c)(15)(i) through (iii).

40 CFR 60.5420a(c)(15)(i) The fugitive emissions monitoring plan as required in §60.5397a(b), (c), and (d).

40 CFR 60.5420a(c)(15)(ii) The records of each monitoring survey as specified in paragraphs §60.5420a(c)(15)(ii)(A) through (I).

40 CFR 60.5420a(c)(15)(ii)(A) Date of the survey.

40 CFR 60.5420a(c)(15)(ii)(B) Beginning and end time of the survey.

40 CFR 60.5420a(c)(15)(ii)(C) Name of operator(s) performing survey. You must note the training and experience of the operator.

40 CFR 60.5420a(c)(15)(ii)(D) Monitoring instrument used.

40 CFR 60.5420a(c)(15)(ii)(E) When optical gas imaging is used to perform the survey, one or more digital photographs or videos, captured from the optical gas imaging instrument used for conduct of monitoring, of each required monitoring survey being performed. The digital photograph must include the date the photograph was taken and the latitude and longitude of the collection of fugitive emissions components at a well site or collection of fugitive emissions components at a compressor station imbedded within or stored with the digital file. As an alternative to imbedded latitude and longitude within the digital file, the digital photograph or video may consist of an image of the monitoring survey being performed with a separately operating GPS device within the same digital picture or video, provided the latitude and longitude output of the GPS unit can be clearly read in the digital image.

40 CFR 60.5420a(c)(15)(ii)(F) [NOT APPLICABLE]

40 CFR 60.5420a(c)(15)(ii)(G) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.

40 CFR 60.5420a(c)(15)(ii)(H) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.

40 CFR 60.5420a(c)(15)(ii)(l) Documentation of each fugitive emission, including the information specified in paragraphs  $\S 60.5420a(c)(15)(ii)(l)(1)$  through (12).

40 CFR 60.5420a(c)(15)(ii)(I)(1) Location.

40 CFR 60.5420a(c)(15)(ii)(I)(2) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.

40 CFR 60.5420a(c)(15)(ii)(I)(3) Number and type of components for which fugitive emissions were detected.

40 CFR 60.5420a(c)(15)(ii)(l)(4) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.

40 CFR 60.5420a(c)(15)(ii)(I)(5) Instrument reading of each fugitive emissions component that requires repair when Method 21 is used for monitoring.

40 CFR 60.5420a(c)(15)(ii)(l)(6) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).

40 CFR 60.5420a(c)(15)(ii)(l)(7) Number and type of components that were tagged as a result of not being repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii).

40 CFR 60.5420a(c)(15)(ii)(I)(8) If a fugitive emissions component is not tagged, a digital photograph or video of each fugitive emissions component that could not be repaired during the monitoring survey when the fugitive emissions were initially found as required in §60.5397a(h)(3)(ii). The digital photograph or video must clearly identify the location of the component that must be repaired. Any digital photograph or video required under this paragraph can also be used to meet the requirements under paragraph §60.5420a(c)(15)(ii)(E), as long as the photograph or video is taken with the optical gas imaging instrument, includes the date and the latitude and longitude are either imbedded or visible in the picture.

40 CFR 60.5420a(c)(15)(ii)(i)(9) Repair methods applied in each attempt to repair the fugitive emissions components.

40 CFR 60.5420a(c)(15)(ii)(I)(10) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.

40 CFR 60.5420a(c)(15)(ii)(I)(11) The date of successful repair of the fugitive emissions component.

40 CFR 60.5420a(c)(15)(ii)(I)(12) Instrumentation used to resurvey a repaired fugitive emissions component that could not be repaired during the initial fugitive emissions finding.

#### 4.2 - Reporting Requirements

40 CFR 60.5420a(b) Reporting requirements. You must submit annual reports containing the information specified in §60.5420a(b)(1) through (8) and (12) of this section and performance test reports as specified in paragraph (b)(9) or (10) of this section, if applicable, except as provided in paragraph (b)(13) of this section. You must submit annual reports following the procedure specified in paragraph (b)(11) of this section. The initial annual report is due no later than 90 days after the end of the initial compliance period as determined according to §60.5410a. Subsequent annual reports are due no later than same date each year as the initial annual report. If you own or operate more than one affected facility, you may submit one report for multiple affected facilities provided the report contains all of the information required as specified in paragraphs (b)(1) through (8) of this section, except as provided in paragraph (b)(13) of this section. Annual reports may coincide with title V reports as long as all the required elements of the annual report are included. You may arrange with the Administrator a common schedule on which reports required by this part may be submitted as long as the schedule does not extend the reporting period.

Reports required by 40 CFR 60.5420a(b) must be submitted annually. The initial annual report is due no later than 90 days after the end of the initial compliance period. Subsequent annual reports are due no later than the same date each year as the initial annual report. The reports must include the following general site specific information and information specific for the collection of fugitive emissions components:

#### REQUIRED SITE SPECIFIC GENERAL INFORMATION

40 CFR 60.5420a(b)(1) The general information specified in paragraphs §60.5420a(b)(1)(i) through (iv) for all reports.

40 CFR 60.5420a(b)(1)(i) The company name, facility site name associated with the affected facility, US Well ID or US Well ID associated with the affected facility, if applicable, and address of the affected facility. If an address is not available for the site, include a description of the site location and provide the latitude and longitude coordinates of the site in decimal degrees to an accuracy and precision of five (5) decimals of a degree using the North American Datum of 1983.

40 CFR 60.5420a(b)(1)(ii) An identification of each affected facility being included in the annual report.

40 CFR 60.5420a(b)(1)(iii) Beginning and ending dates of the reporting period.

40 CFR 60.5420a(b)(1)(iv) A certification by a certifying official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

#### REQUIRED INFORMATION FOR THE COLLECTION OF FUGITIVE EMISSIONS COMPONENTS

40 CFR 60.5420a(b)(7) For the collection of fugitive emissions components at each well site and the collection of fugitive emissions components at each compressor station within the company-defined area, the records of each monitoring survey including the information specified in paragraphs §60.5420a(b)(7)(i) through (xii). For the collection of fugitive emissions components at a compressor station, if a monitoring survey is waived under §60.5397a(g)(5), you must include in your annual report the fact that a monitoring survey was waived and the calendar months that make up the quarterly monitoring period for which the monitoring survey was waived.

40 CFR 60.5420a(b)(7)(i) Date of the survey.

40 CFR 60.5420a(b)(7)(ii) Beginning and end time of the survey.

40 CFR 60.5420a(b)(7)(iii) Name of operator(s) performing survey. If the survey is performed by optical gas imaging, you must note the training and experience of the operator.

40 CFR 60.5420a(b)(7)(iv) Ambient temperature, sky conditions, and maximum wind speed at the time of the survey.

40 CFR 60.5420a(b)(7)(v) Monitoring instrument used.

40 CFR 60.5420a(b)(7)(vi) Any deviations from the monitoring plan or a statement that there were no deviations from the monitoring plan.

40 CFR 60.5420a(b)(7)(vii) Number and type of components for which fugitive emissions were detected.

40 CFR 60.5420a(b)(7)(viii) Number and type of fugitive emissions components that were not repaired as required in §60.5397a(h).

40 CFR 60.5420a(b)(7)(ix) Number and type of difficult-to-monitor and unsafe-to-monitor fugitive emission components monitored.

40 CFR 60.5420a(b)(7)(x) The date of successful repair of the fugitive emissions component.

40 CFR 60.5420a(b)(7)(xi) Number and type of fugitive emission components placed on delay of repair and explanation for each delay of repair.

## **Appendix A**

Affected Facilities List

### **AFFECTED FACILITIES LIST**

Appendix A contains a list of facilities that are covered by this Fugitive Emissions Monitoring Plan. Site specific information will be listed in Appendix B.

Facility Site Name:	Facility Type:	Surveying Frequency	Borough:	State:
Beaver Creek Unit Pad 3	Well Site	Semiannually	Kenai Peninsula	AK
Beaver Creek Unit Pad 4	Well Site	Semiannually	Kenai Peninsula	AK
Cannery Loop Unit No. 1 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Deep Creek Unit Happy Valley B Pad	Well Site	Semiannually	Kenai Peninsula	AK
Kenai Gas Field 14-06 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Kenai Gas Field 41-07 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Kenai Gas Field 41-18 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Milne Point Unit B Pad	Well Site	Annually	North Slope	AK
Milne Point Unit C Pad	Well Site	Annually	North Slope	AK
Milne Point Unit E Pad	Well Site	Annually	North Slope	AK
Milne Point Unit F Pad	Well Site	Annually	North Slope	AK
Milne Point Unit J Pad	Well Site	Annually	North Slope	AK
Milne Point Unit K Pad	Well Site	Annually	North Slope	AK
Milne Point Unit L Pad	Well Site	Annually	North Slope	AK
Milne Point Unit S Pad	Well Site	Annually	North Slope	AK
Milne Point Unit Moose Pad	Well Site	Annually	North Slope	AK
Nikolaevsk Unit Red Pad	Well Site	Semiannually	Kenai Peninsula	AK
Ninilchik Unit Kalotsa Pad	Well Site	Semiannually	Kenai Peninsula	AK
Swanson River SCU 12-03 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Swanson River SCU 14-04 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Swanson River SCU 33-33 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Swanson River SRU 21-33 Pad	Well Site	Semiannually	Kenai Peninsula	AK
Swanson River SRU 32-15 Pad	Well Site	Semiannually	Kenai Peninsula	AK

## Appendix B

Site-Specific Monitoring Plan Components

#### **Beaver Creek Unit Pad 3**

Name of Facility: Beaver Creek Unit Pad 3

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

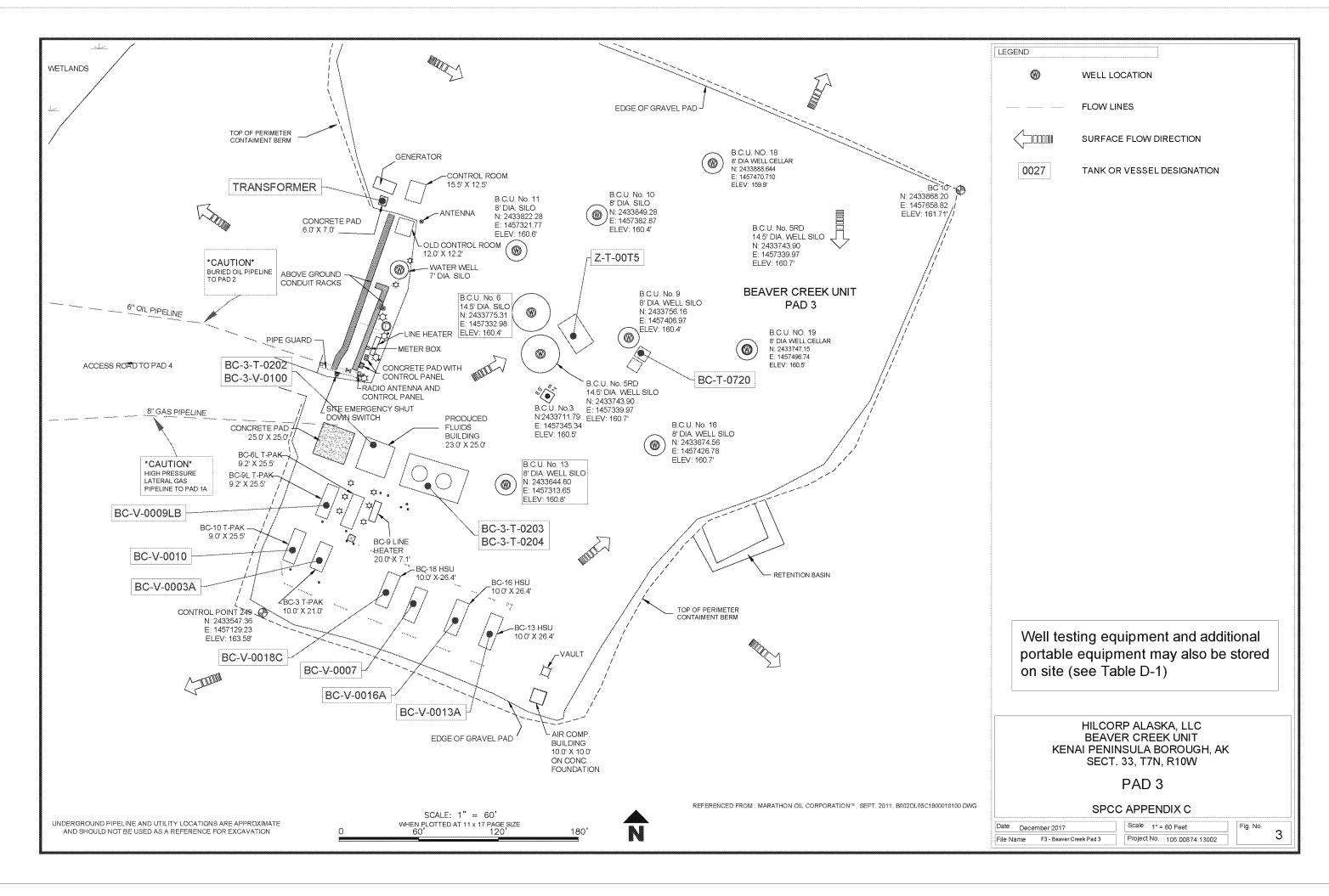
**Facility Coordinates:** Latitude <u>60.65771</u>

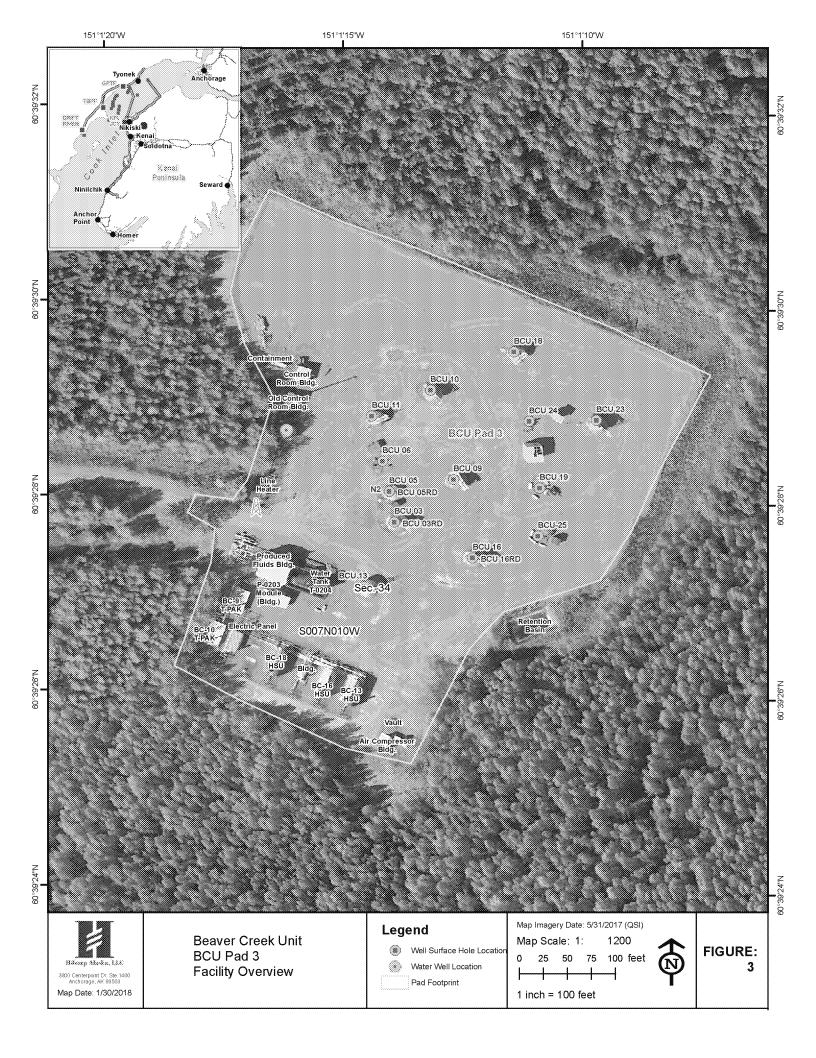
Longitude <u>-151.02144</u>

Facility Location: From the Kenai Alaska: Proceed Northeast on N Willow St. for approximately

0.5 miles. Turn left onto Marathon Road. Proceed for approximately 11 miles.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





#### **Beaver Creek Unit Pad 4**

Name of Facility: Beaver Creek Unit Pad 4

Borough: Kenai Peninsula

State:AlaskaFacility Type:Well SiteSurveying Frequency:Semiannually

**Facility Coordinates:** Latitude <u>60.65651</u>

*Longitude* -151.03222

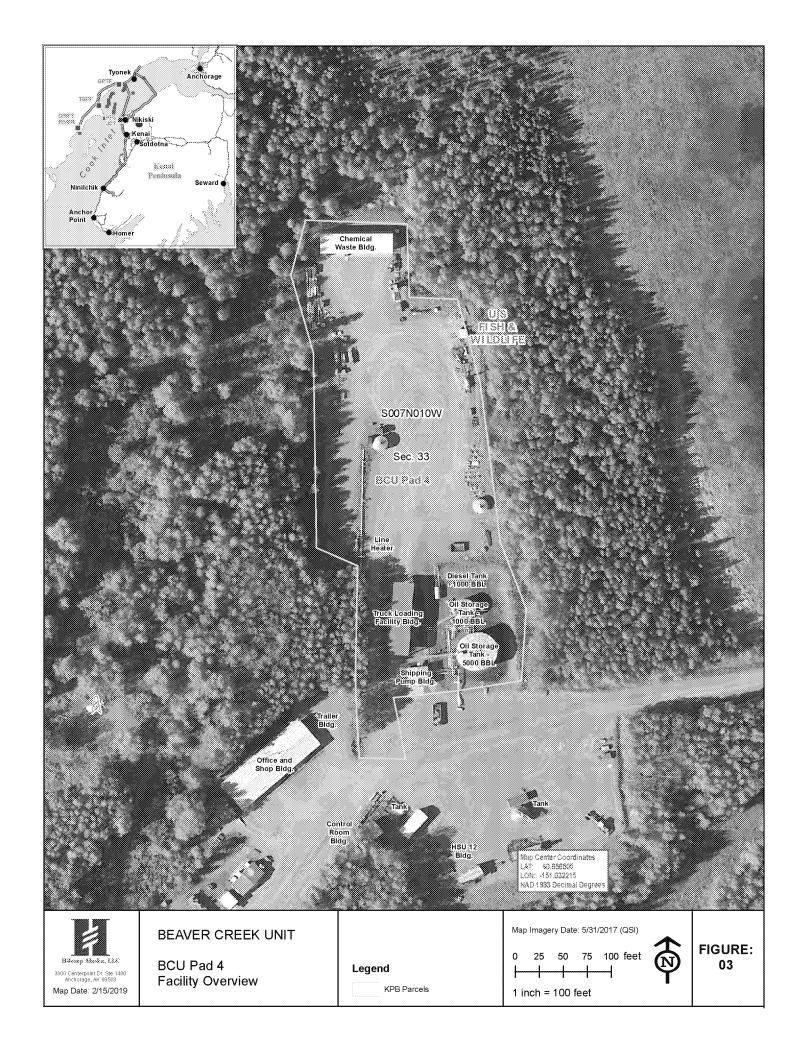
Facility Location: From the Kenai Alaska: Proceed Northeast on N Willow St. for approximately

0.5 miles. Turn left onto Marathon Road. Proceed for approximately 11 miles.

☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))

☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))

oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



#### Cannery Loop Unit No. 1 Pad

Name of Facility: Cannery Loop Unit No. 1 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

**Facility Coordinates:** Latitude 60.531612

Longitude -151.264629

Facility Location: From Kenai, travel South on Bridge Access Road to the Tat Kasilof Beach Road

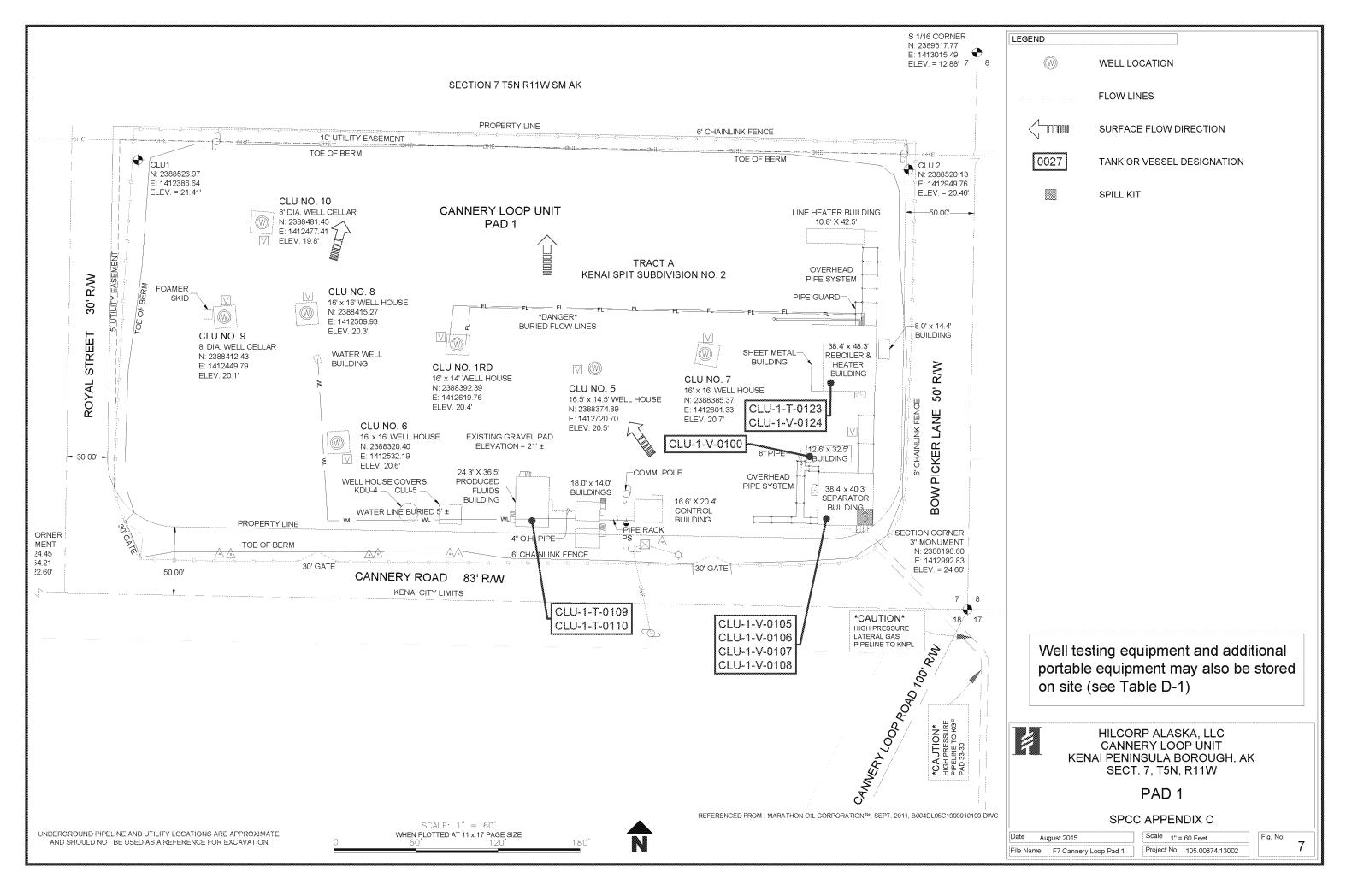
and turn right. Drive 2 miles and turn left on Bowpicker Lane (Access to the beach). Follow it straight until it T's with Royal Street and Cannery Road. You

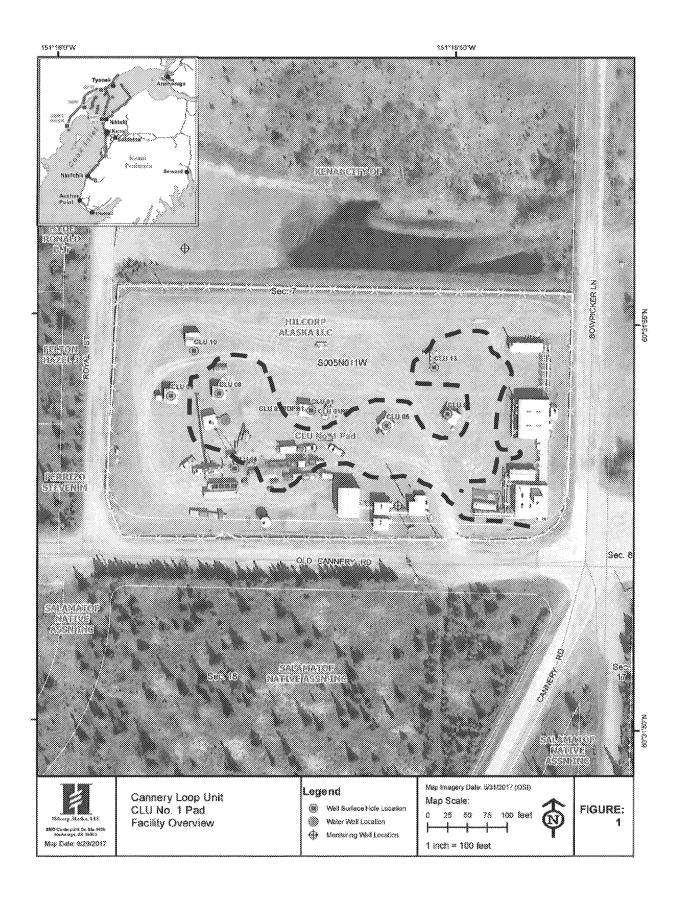
will see Cannery Loop 1 behind the fence at this intersection.

☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))

☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))

☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





#### **Deep Creek Unit Happy Valley B Pad**

Name of Facility: Deep Creek Unit Happy Valley B Pad

Borough: Kenai Peninsula

State:AlaskaFacility Type:Well SiteSurveying Frequency:Semiannually

Facility Coordinates: Latitude 59.988198

Longitude -151.510921

Facility Location: From Ninilchik, drive 8.5 miles down Oilwell Road (at the gas station) to the

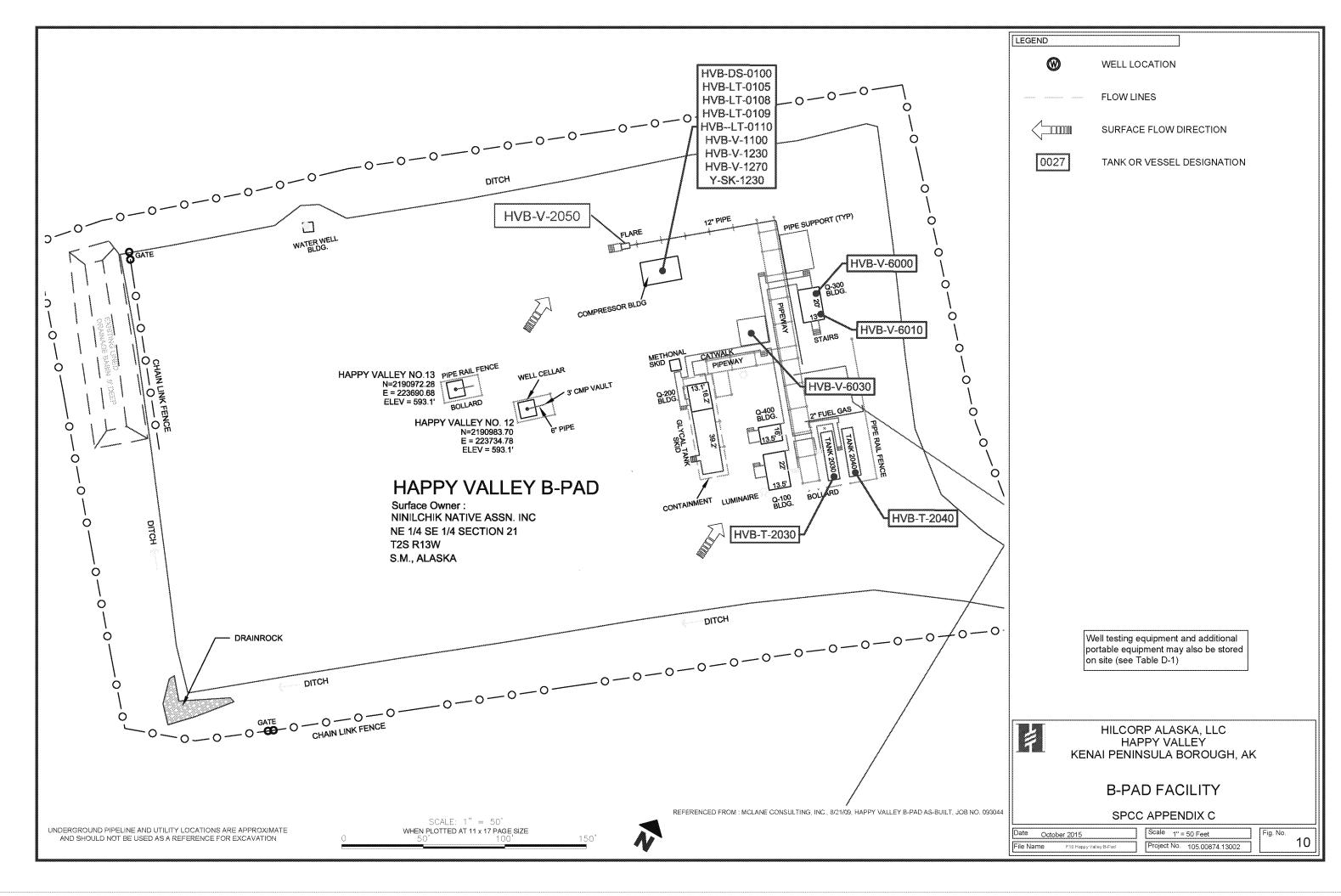
main gate at Happy Valley A Pad. Turn right before entering and continue 1/4

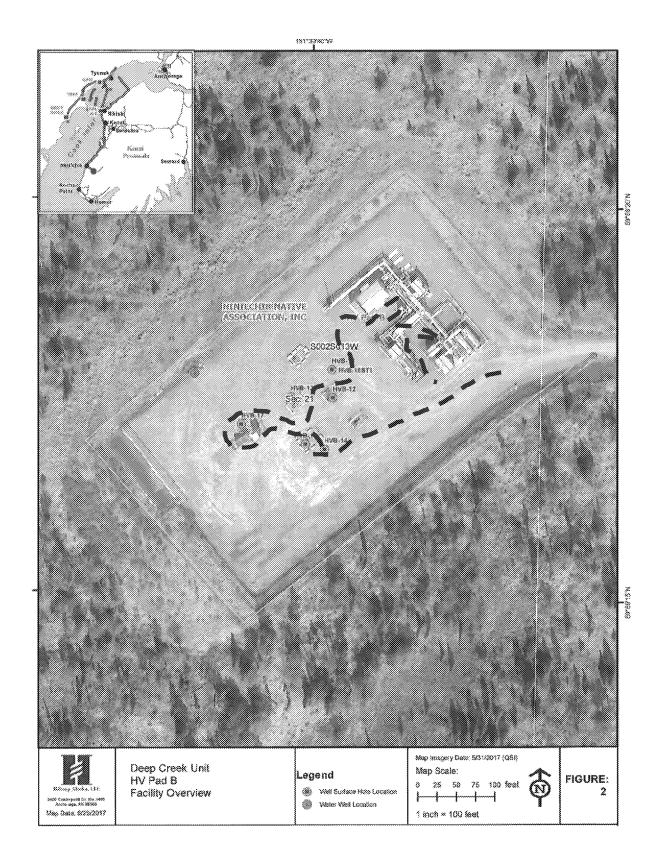
mile to Happy Valley B Pad.

☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))

☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))

☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





### Kenai Gas Field 14-06 Pad

Name of Facility: Kenai Gas Field 14-06 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

**Facility Coordinates:** *Latitude* 60.459513

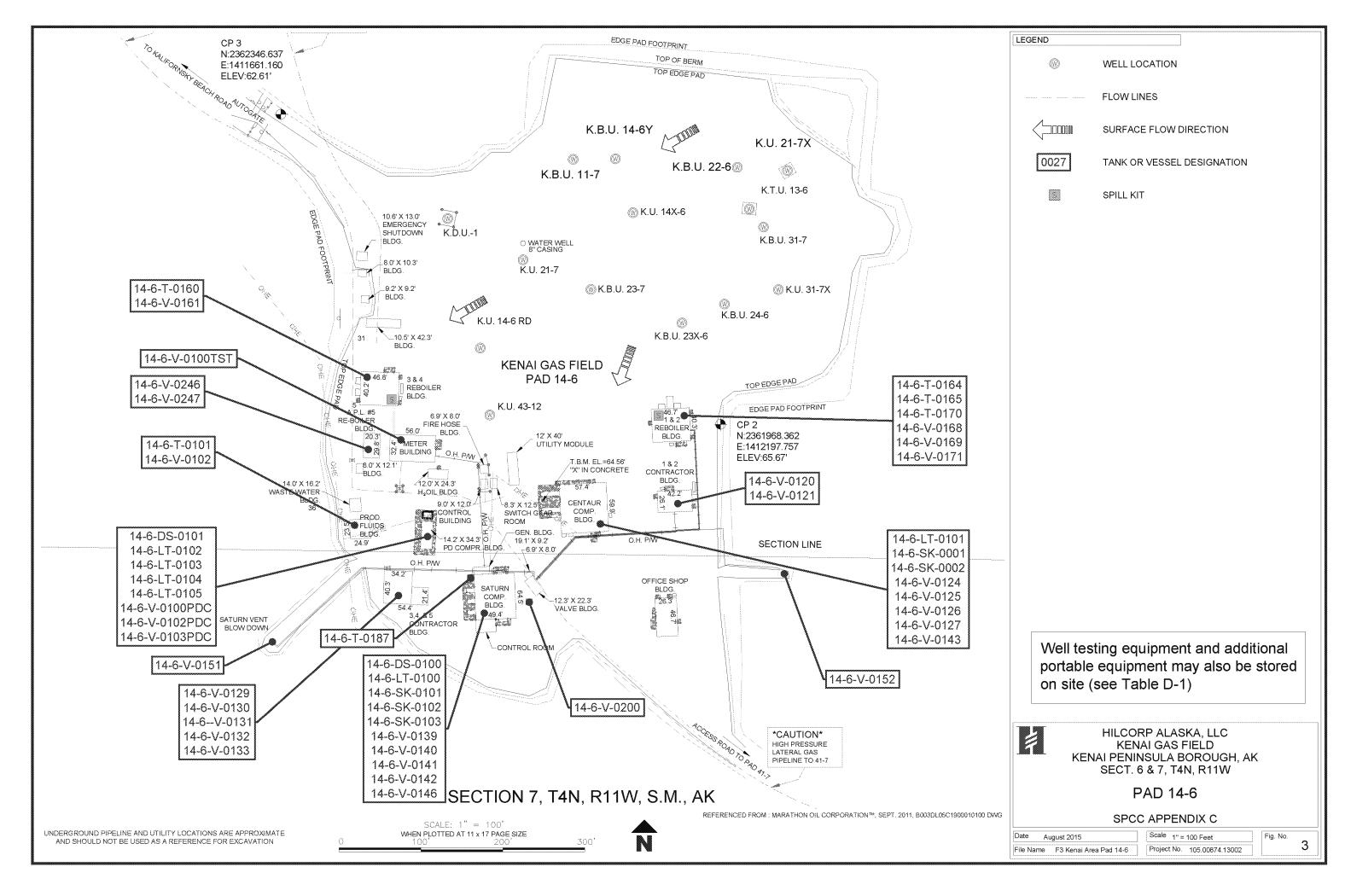
Longitude -151.265249

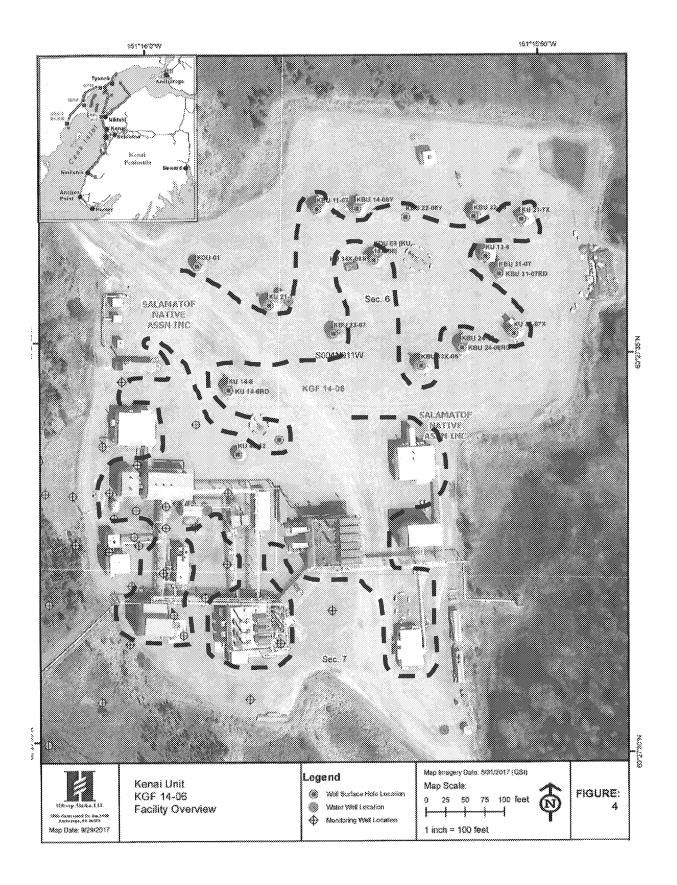
Facility Location: 35350 Kalifornsky Beach Road

Kenai, AK 99611

Driving Directions: From Kenai, travel South on Bridge Access Road to the T at Kasilof Beach Road and turn right. Drive about 4 miles (.38 miles past the entrance to the KGF main office-Mile 10.6 K-Beach Rd.). Turn left on the large diagonal road (Oil Co Haul Road) and proceed almost a mile to pad 14-6.

- oximes Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





### Kenai Gas Field 41-07 Pad

Name of Facility: Kenai Gas Field 41-07 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

**Facility Coordinates:** Latitude <u>60.458048</u>

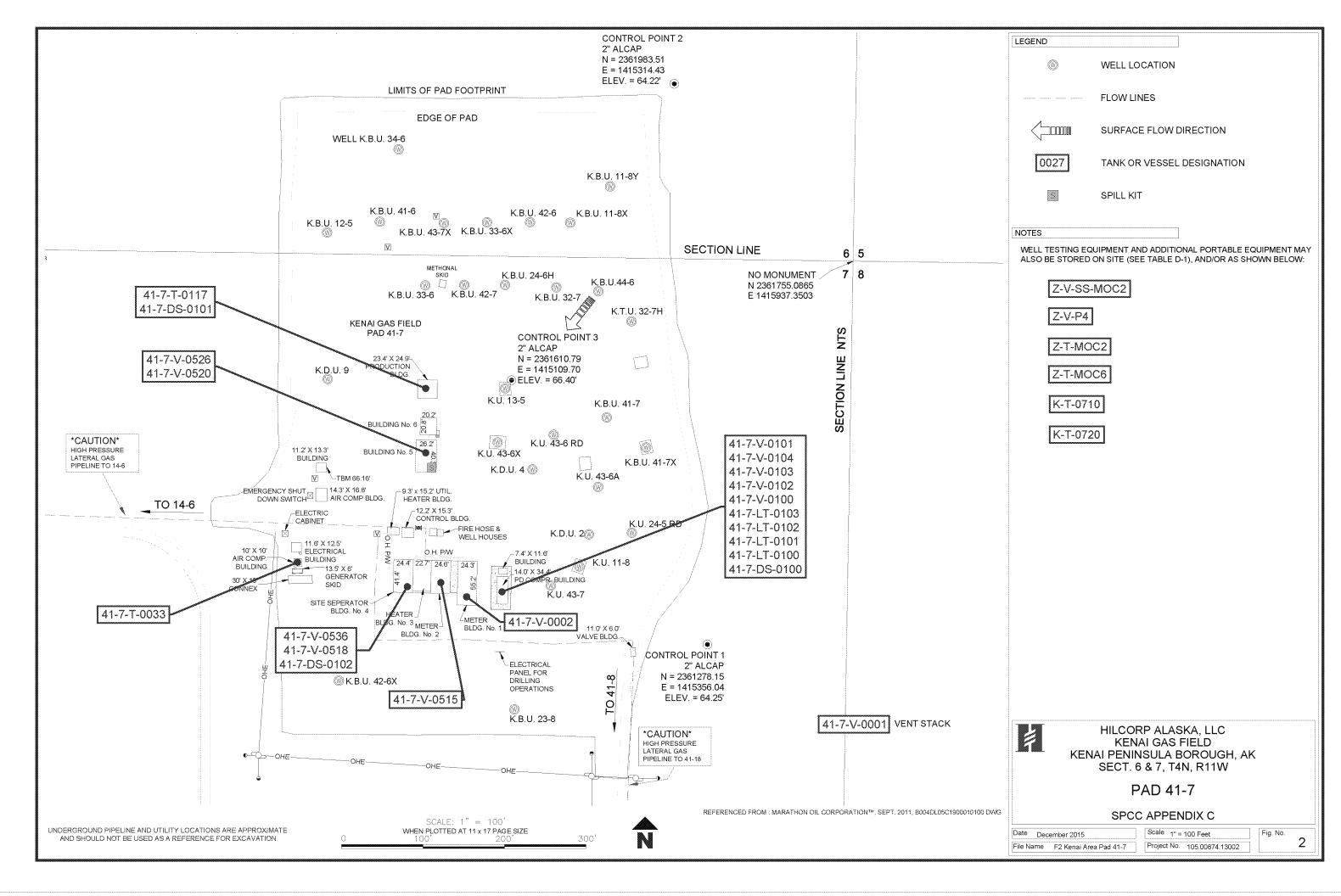
Longitude -151.248611

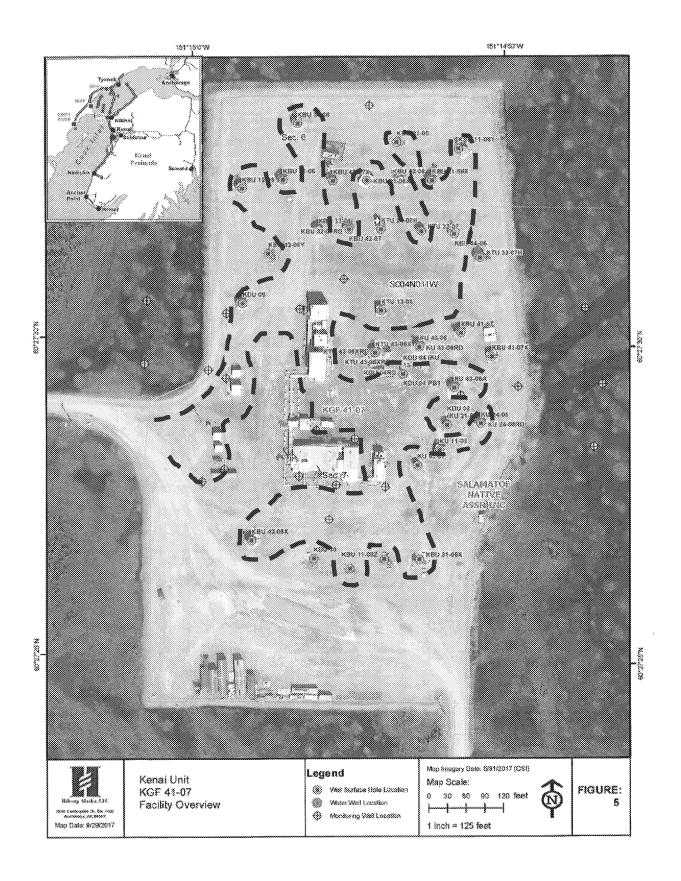
Facility Location: From Kenai, travel South on Bridge Access Road to the Tat Kasilof Beach Road

and turn right. Drive about 4 miles (.38 miles past the entrance to the KGF main office-Mile 10.6 K-Beach Rd). Turn left on the large diagonal road (Oil Co Haul Road) and proceed almost a mile to pad 14-6, pass this pad and proceed

a little over .5 miles to pad 41-7.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





### Kenai Gas Field 41-18 Pad

Name of Facility: Kenai Gas Field 41-18 Pad

Borough: Kenai Peninsula

State:AlaskaFacility Type:Well SiteSurveying Frequency:Semiannually

**Facility Coordinates:** Latitude <u>60.442536</u>

Longitude -151.246654

Facility Location: From Kenai, travel South on Bridge Access Road to the Tat Kasilof Beach Road

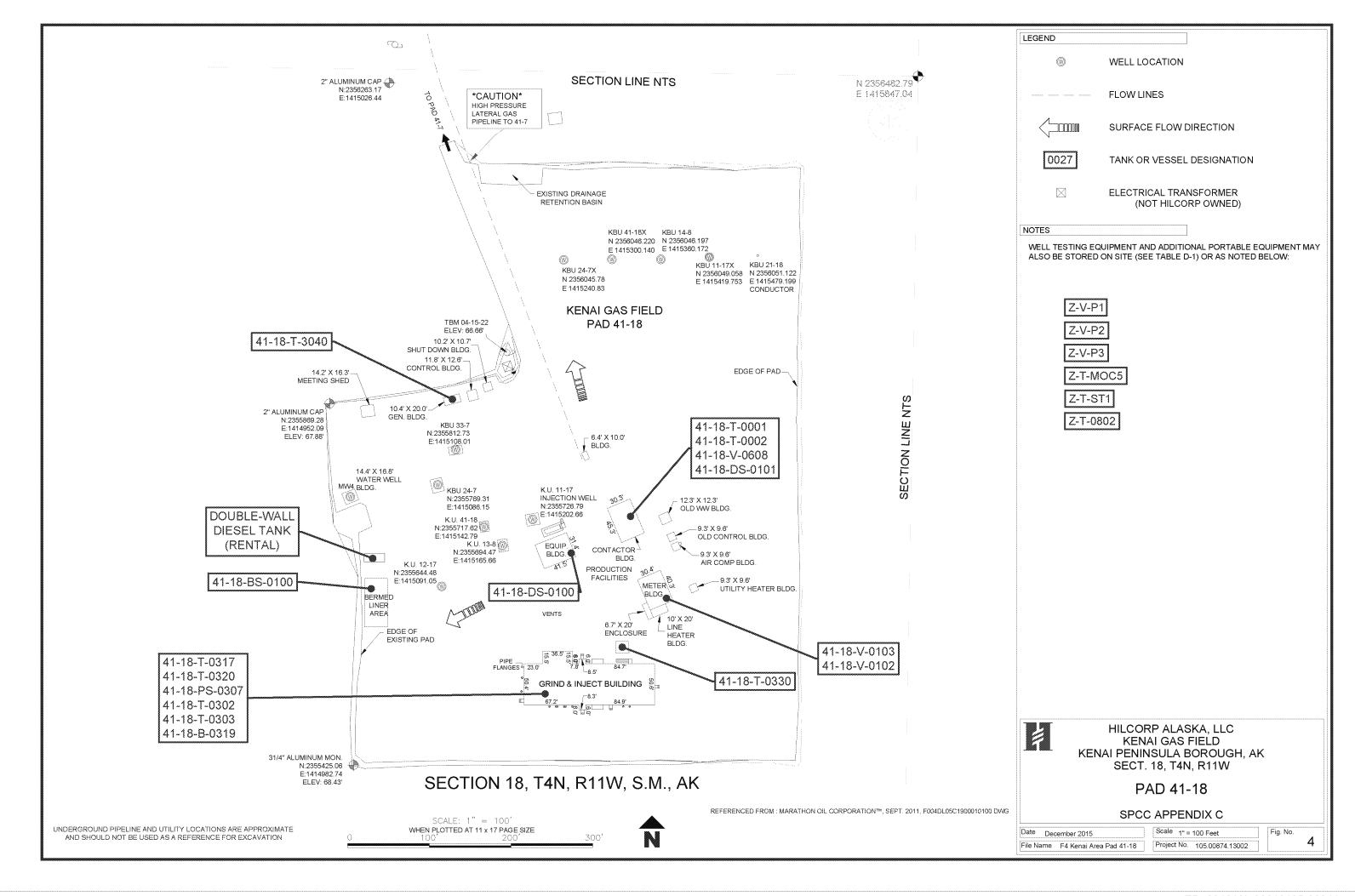
and turn right. Drive about 4 miles (.38 miles past the entrance to the KGF main office - Mile 10.6 K-Beach Rd.). Turn left on the large diagonal road (Oil Co Haul Road) and proceed almost a mile to pad 14-6, pass this pad and proceed a little over .5 miles to pad 41-7. Drive through 41-7 and go another

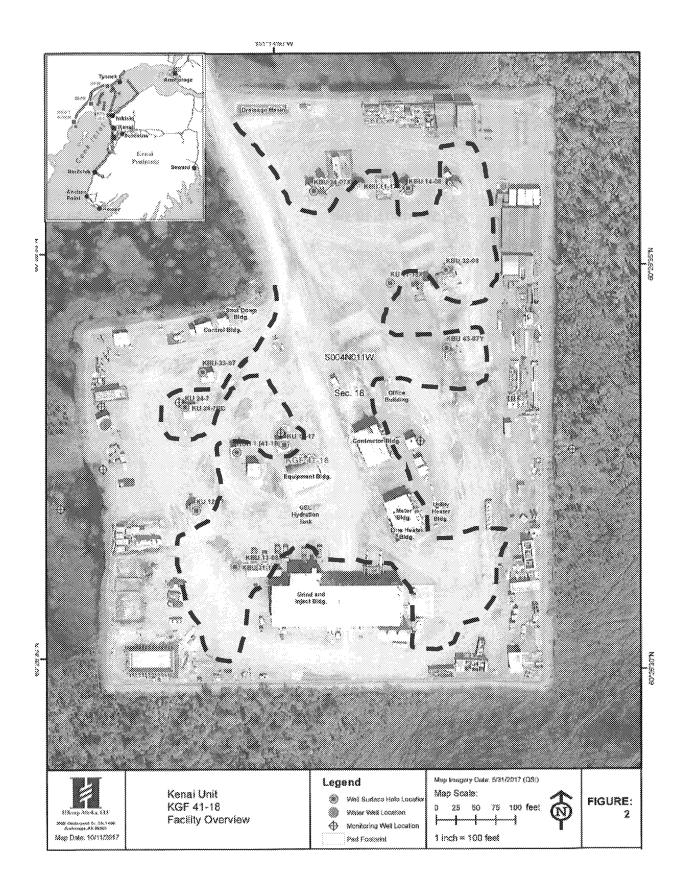
mile to Pad 41-18.

☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))

☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))

oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit B Pad

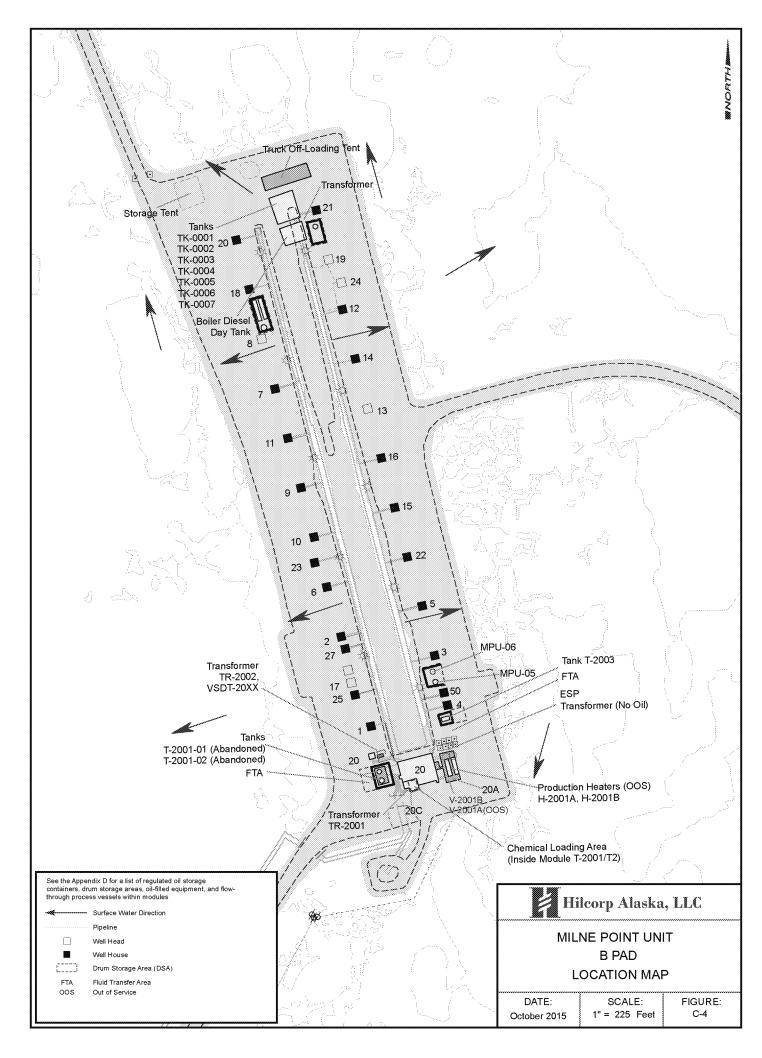
Name of Facility: Milne Point Unit B Pad

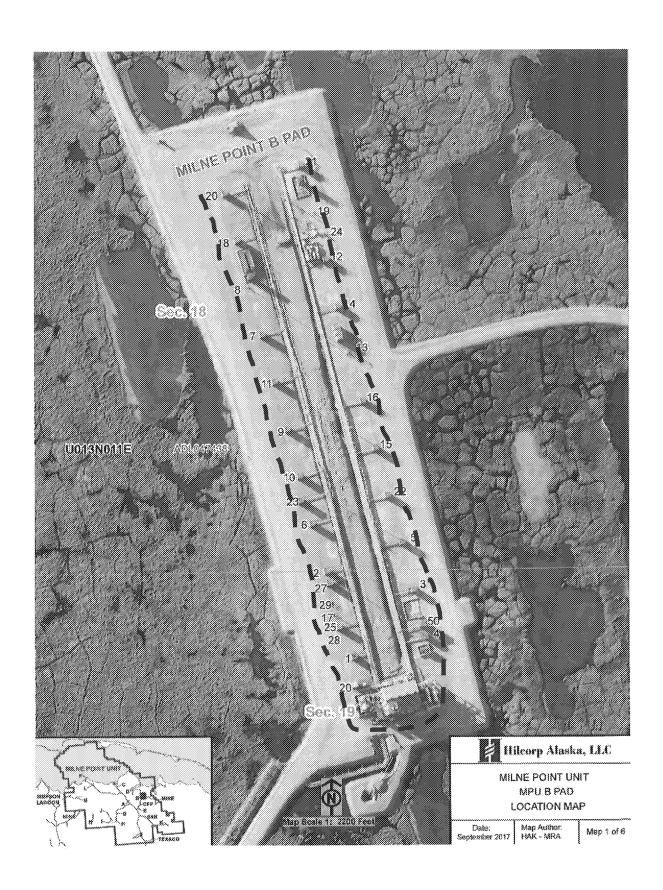
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

Facility Coordinates: Latitude 70.474012

Longitude <u>-149.41495</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit C Pad

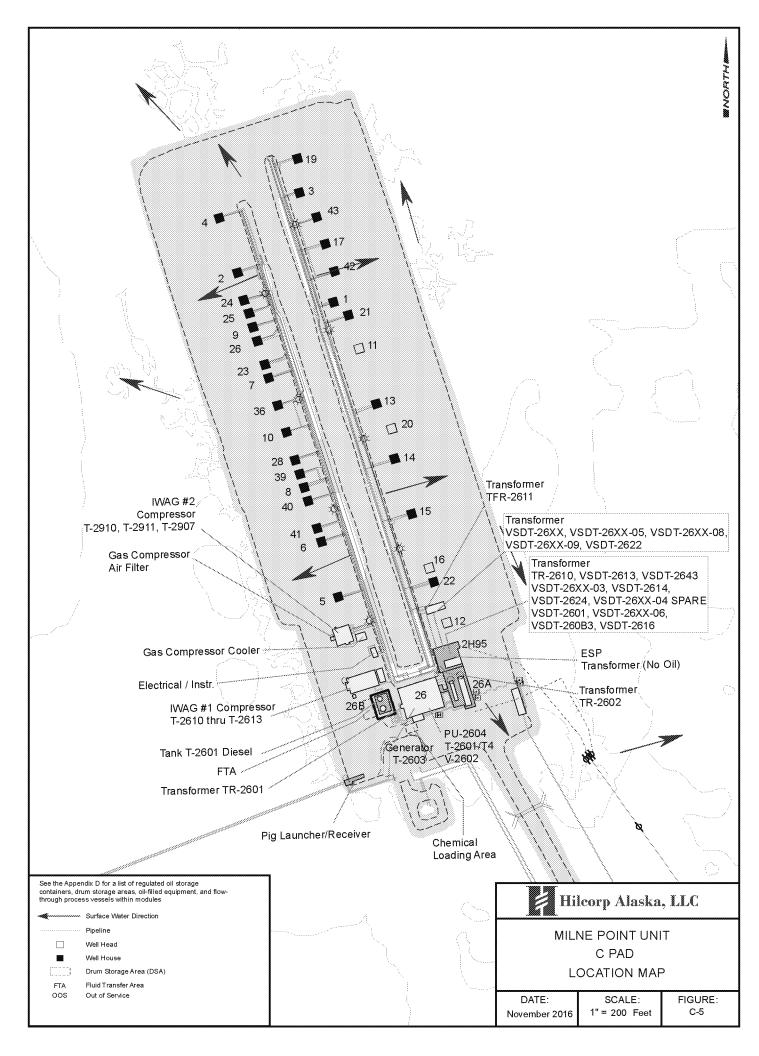
Name of Facility: Milne Point Unit C Pad

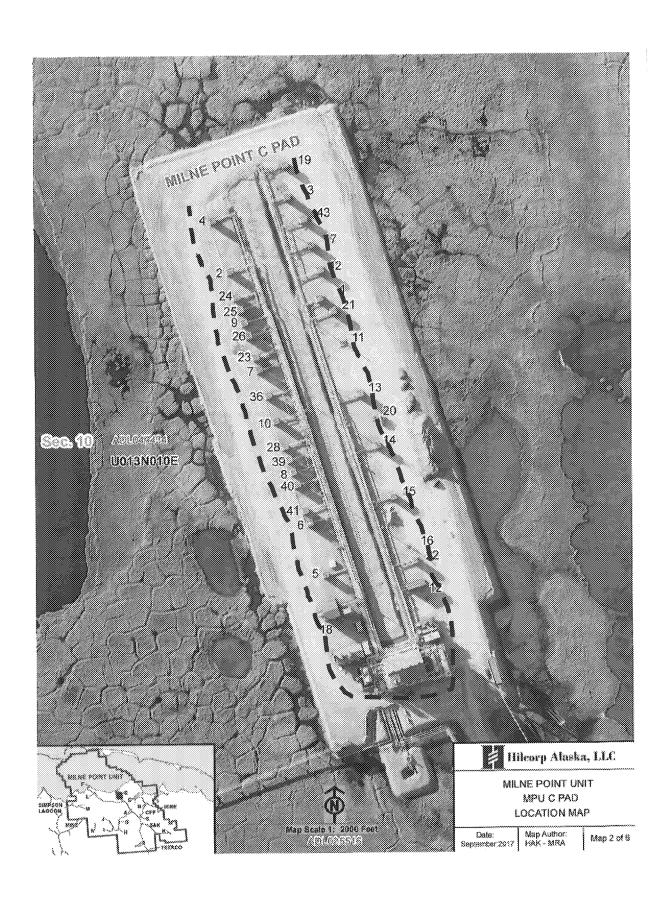
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

Facility Coordinates: Latitude 70.489698

Longitude <u>-149.52687</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit E Pad

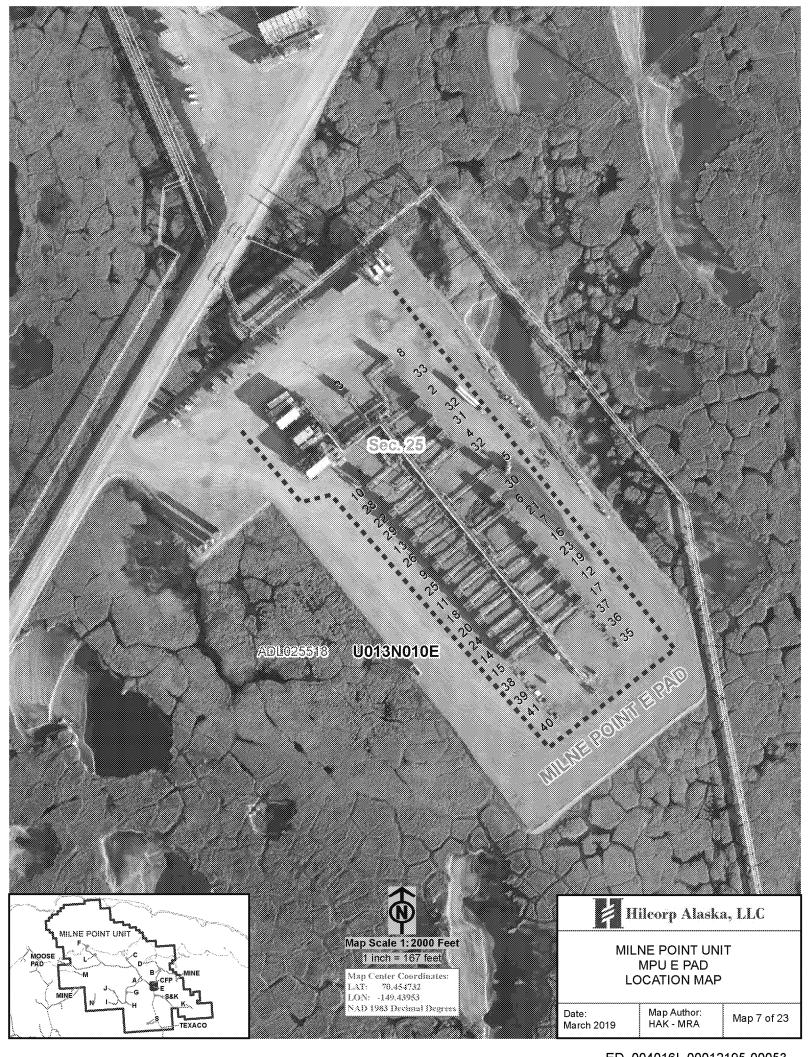
Name of Facility: Milne Point Unit E Pad

Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

**Facility Coordinates:** Latitude <u>70.45473</u>

*Longitude* -149.43953

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- $\ oxin Difficult-to-Monitor\ \&\ Unsafe-to-Monitor\ Components\ Attached,\ as\ Applicable\ (required\ per\ 40\ CFR\ 60.5397a(d)(4))$



# Milne Point Unit F Pad

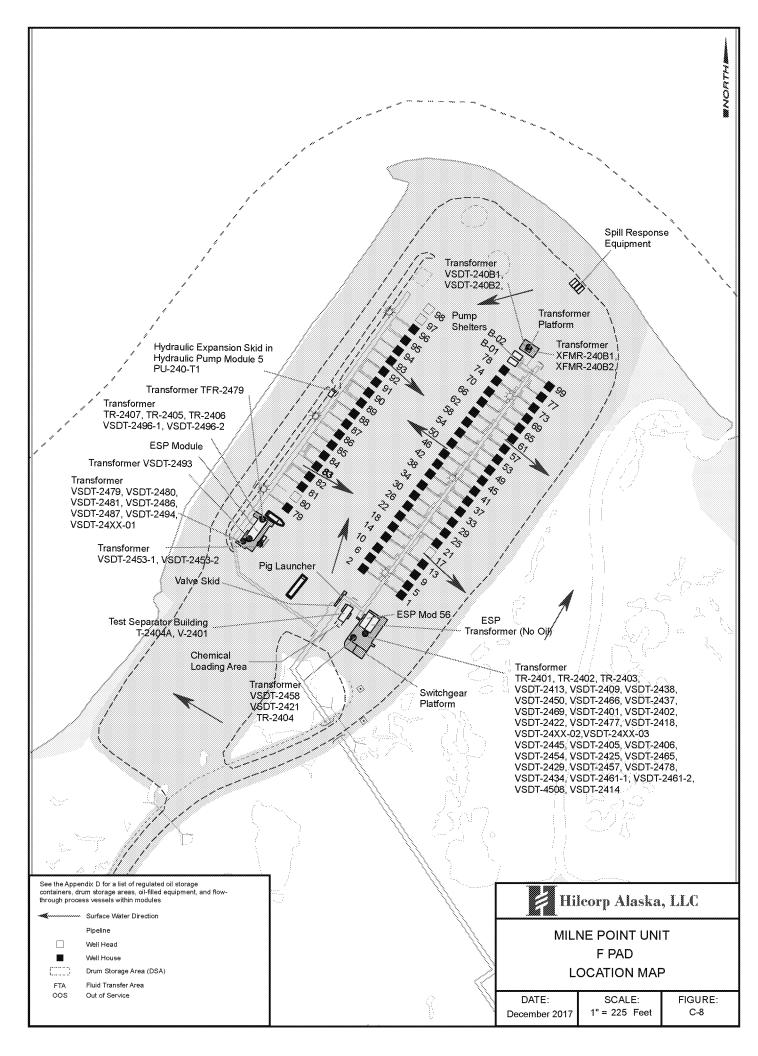
Name of Facility: Milne Point Unit F Pad

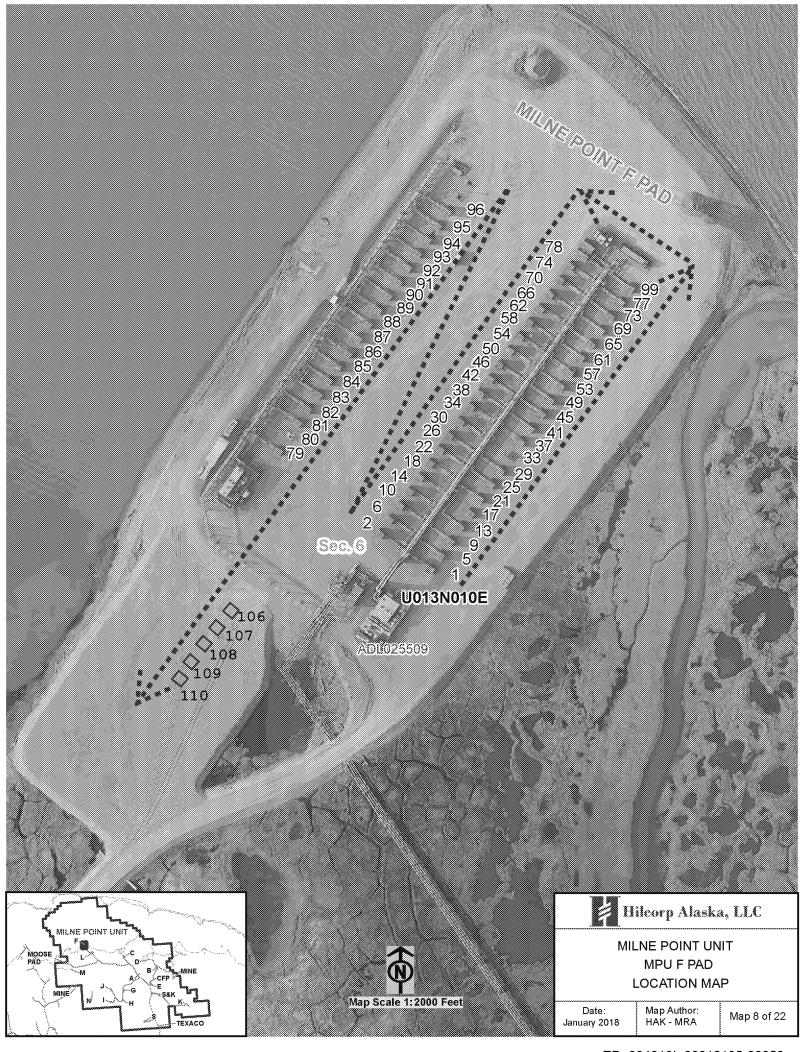
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

Facility Coordinates: Latitude 70.507606

Longitude <u>-149.660607</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit J Pad

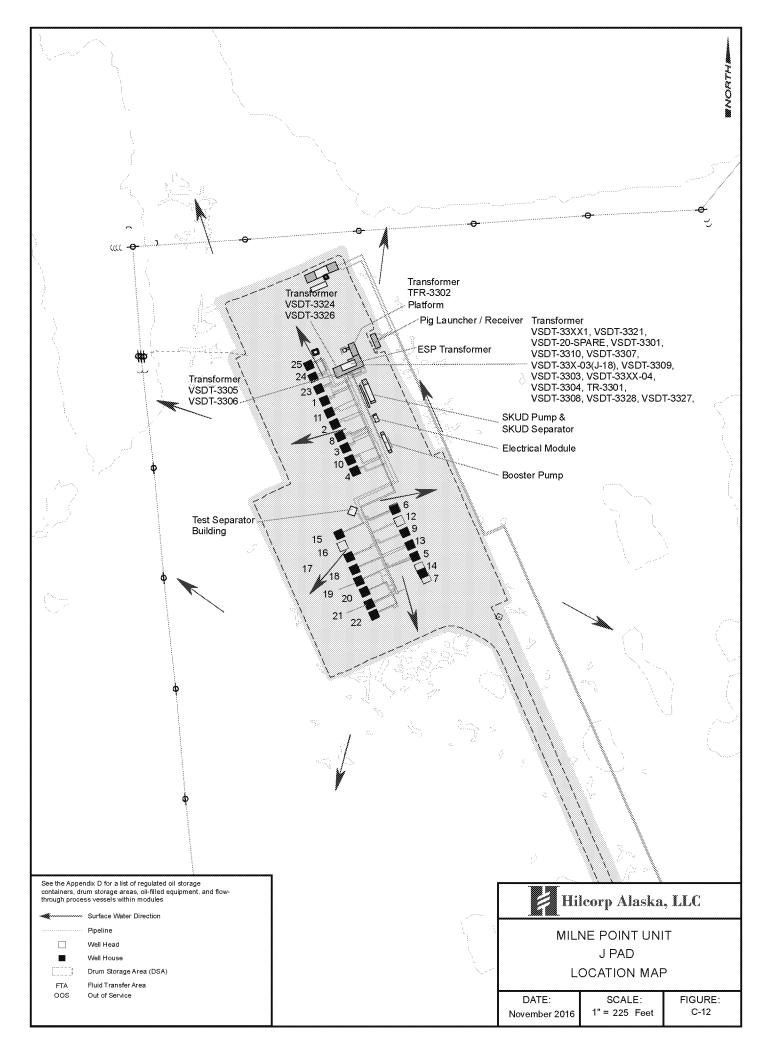
Name of Facility: Milne Point Unit J Pad

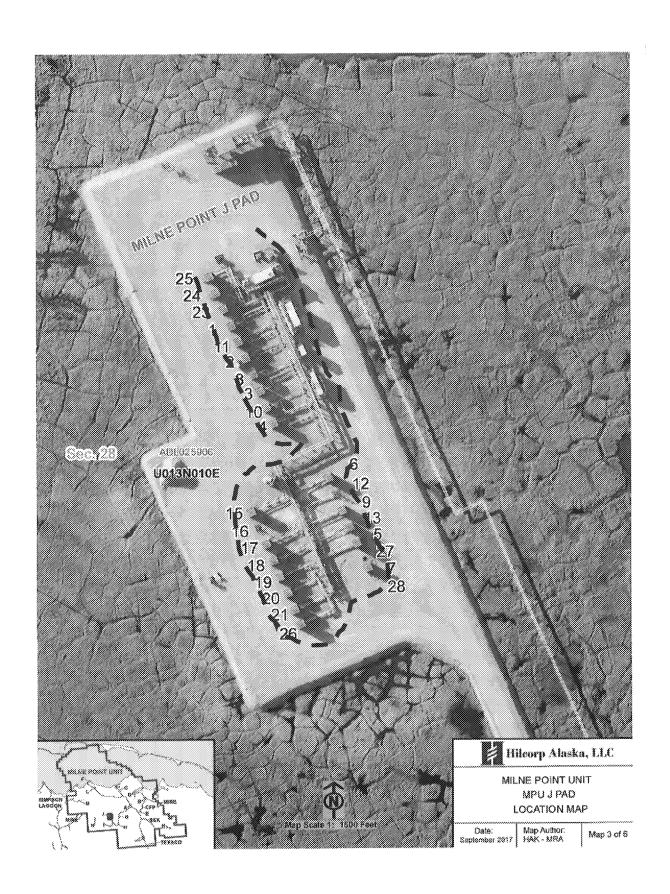
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

**Facility Coordinates:** Latitude <u>70.451015</u>

Longitude <u>-149.577931</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit K Pad

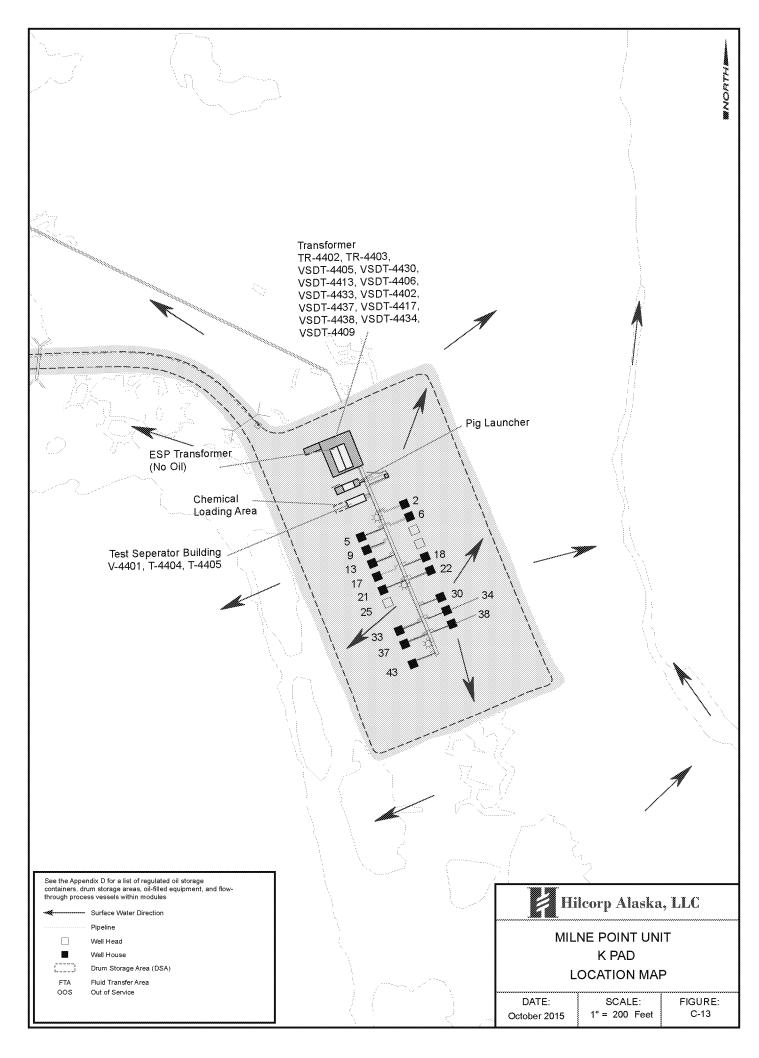
Name of Facility: Milne Point Unit K Pad

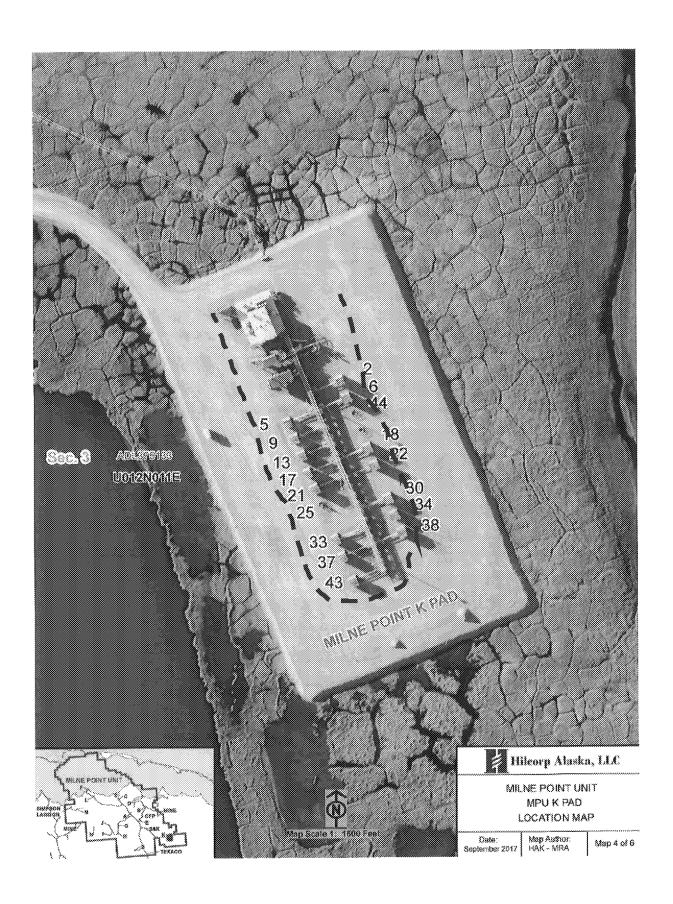
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

**Facility Coordinates:** Latitude <u>70.42553</u>

Longitude <u>-149.314494</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit L Pad

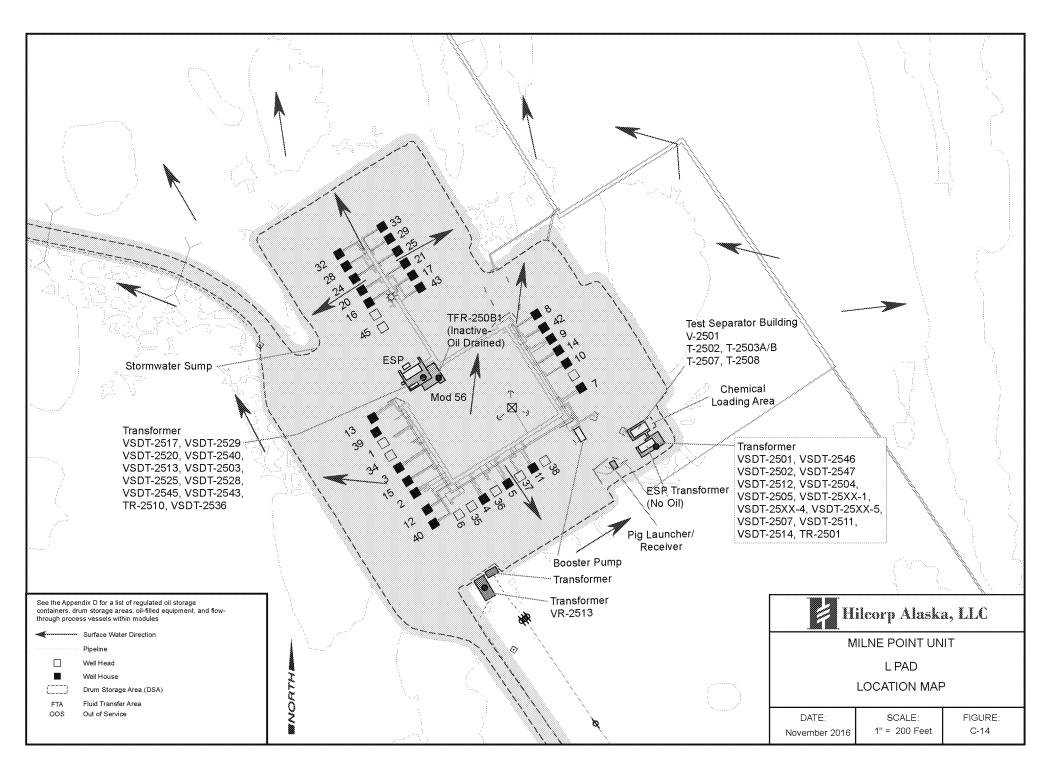
Name of Facility: Milne Point Unit L Pad

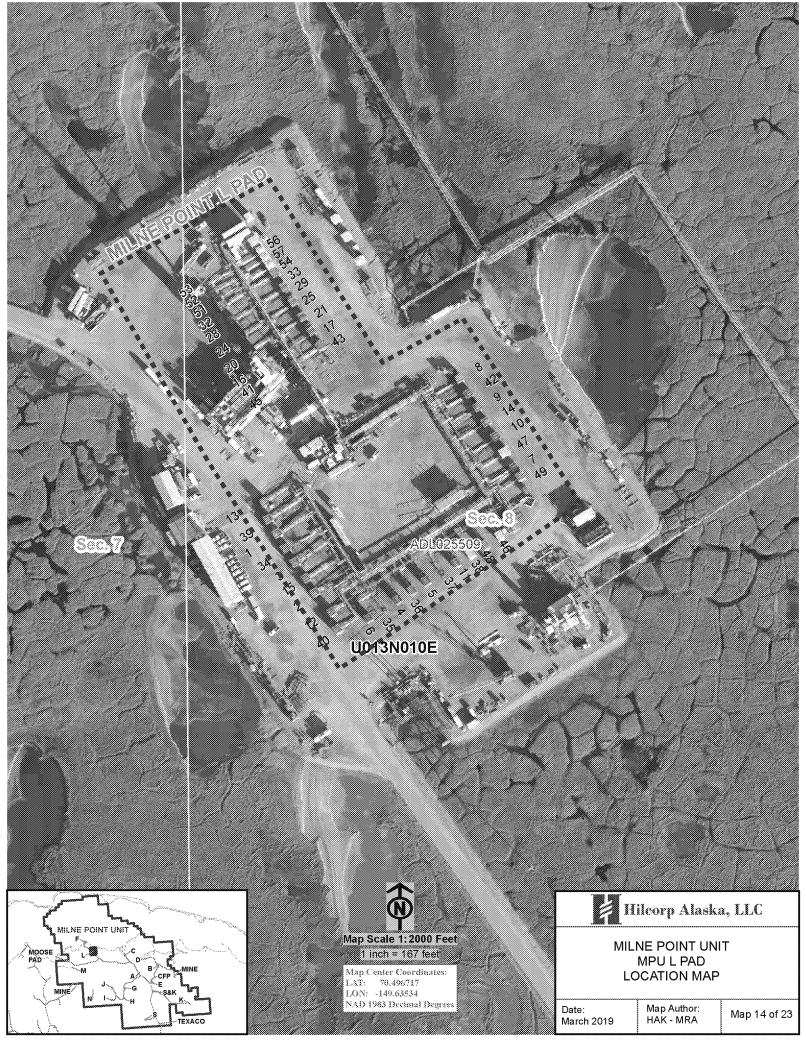
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

**Facility Coordinates:** Latitude <u>70.496717</u>

Longitude <u>-149.63534</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





# Milne Point Unit S Pad

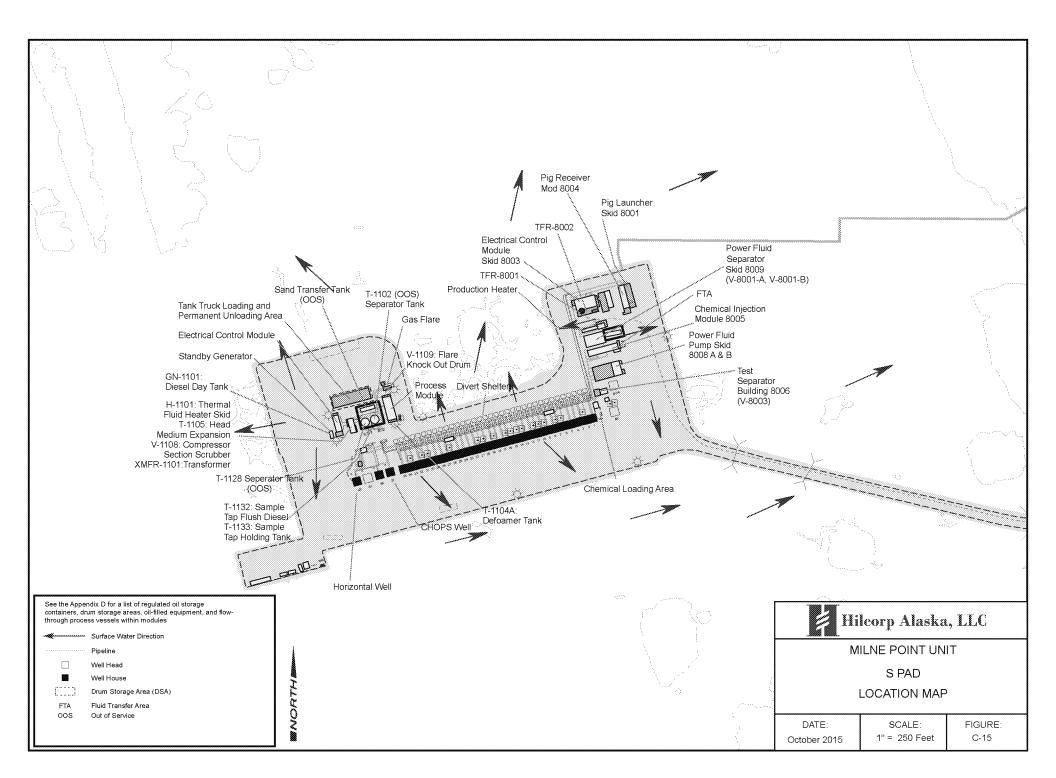
Name of Facility: Milne Point Unit S Pad

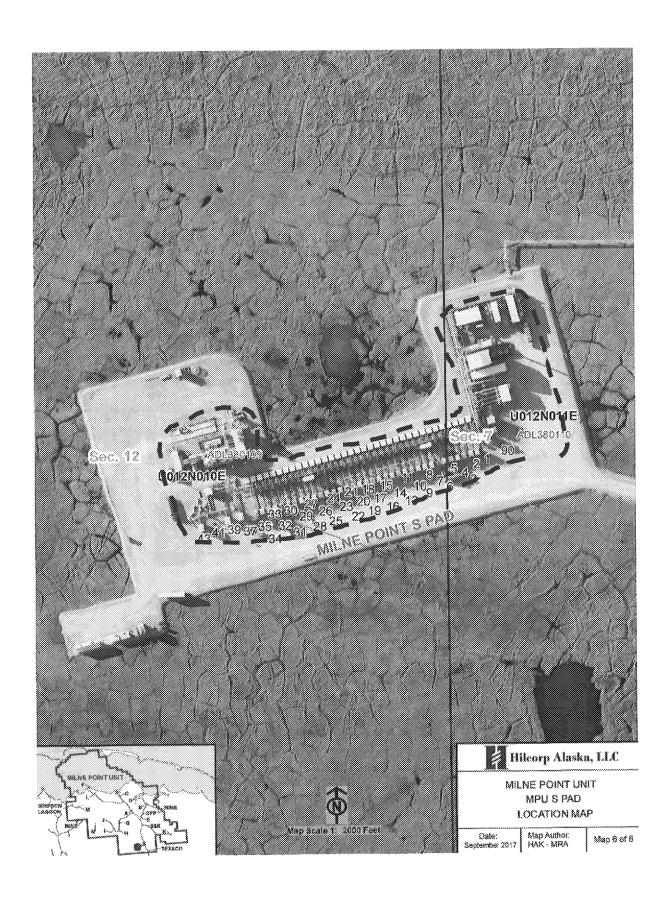
Borough: North Slope
State: Alaska
Facility Type: Well Site
Surveying Frequency: Annually

Facility Coordinates: Latitude 70.410267

Longitude <u>-149.466455</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





### Milne Point Unit Moose Pad

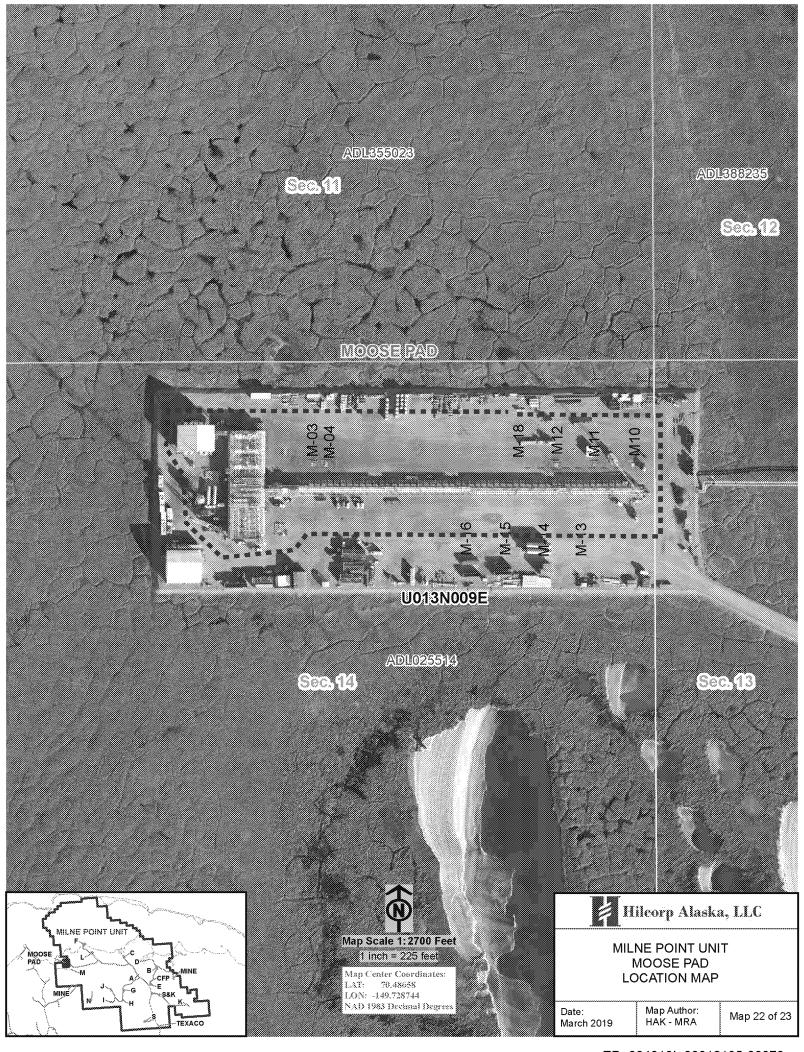
Name of Facility: Milne Point Unit Moose Pad

Borough:North SlopeState:AlaskaFacility Type:Well SiteSurveying Frequency:Annually

**Facility Coordinates:** Latitude <u>70.48658</u>

Longitude <u>-149.72874</u>

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- $\ oxin Difficult-to-Monitor\ \&\ Unsafe-to-Monitor\ Components\ Attached,\ as\ Applicable\ (required\ per\ 40\ CFR\ 60.5397a(d)(4))$



### Nikolaevsk Unit Red Pad

Name of Facility: Nikolaevsk Unit Red Pad

Borough: Kenai Peninsula

State:AlaskaFacility Type:Well SiteSurveying Frequency:Semiannually

Facility Coordinates: Latitude 59.850748

Longitude <u>-151.563895</u>

**Facility Location:** From K-Beach Road turing onto the Sterling Highway:

Turn right onto Sterling Highway

Proceed for about 51 miles. (Anchor Point

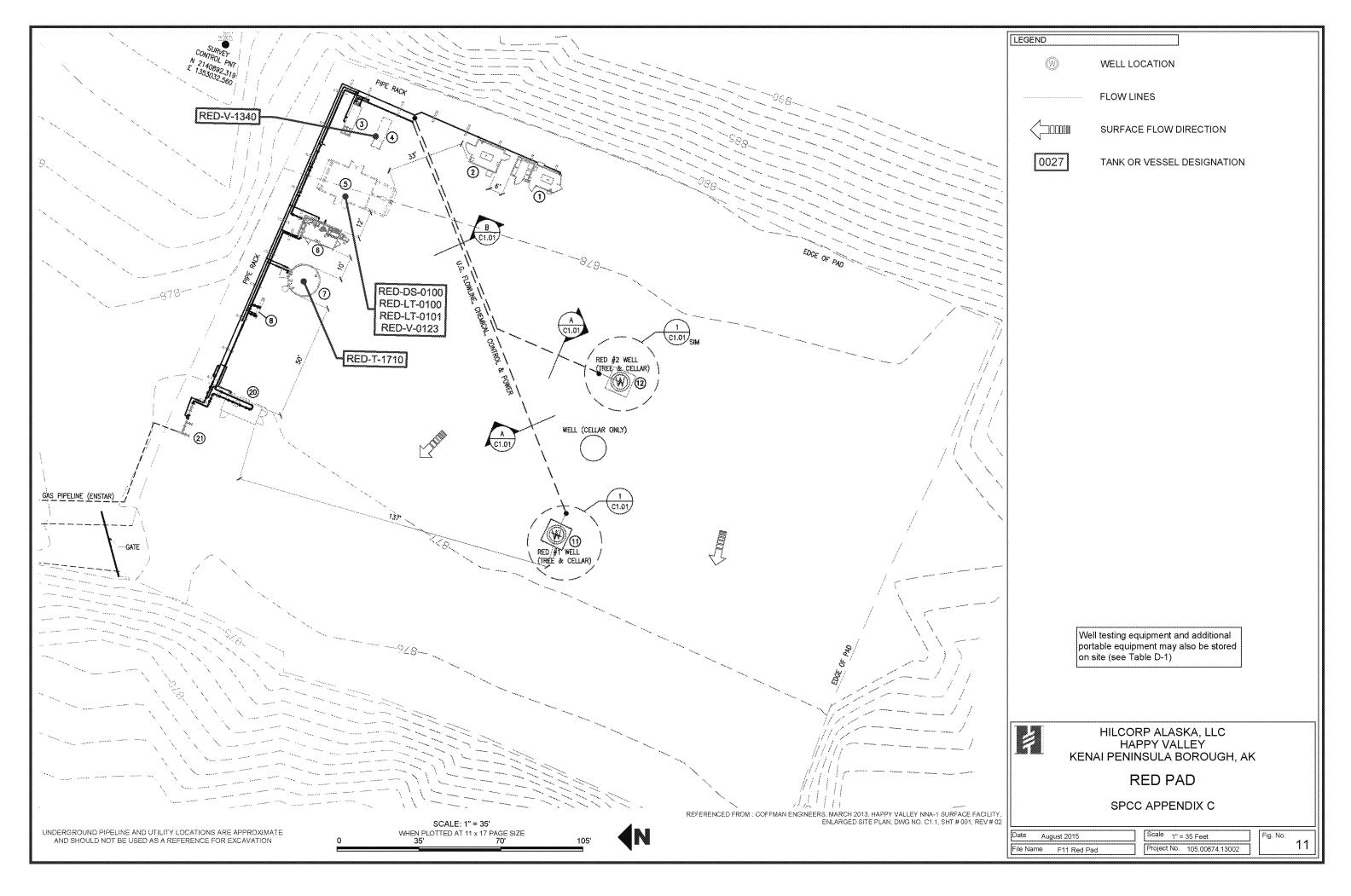
Turn Left onto Tall Tree Ave

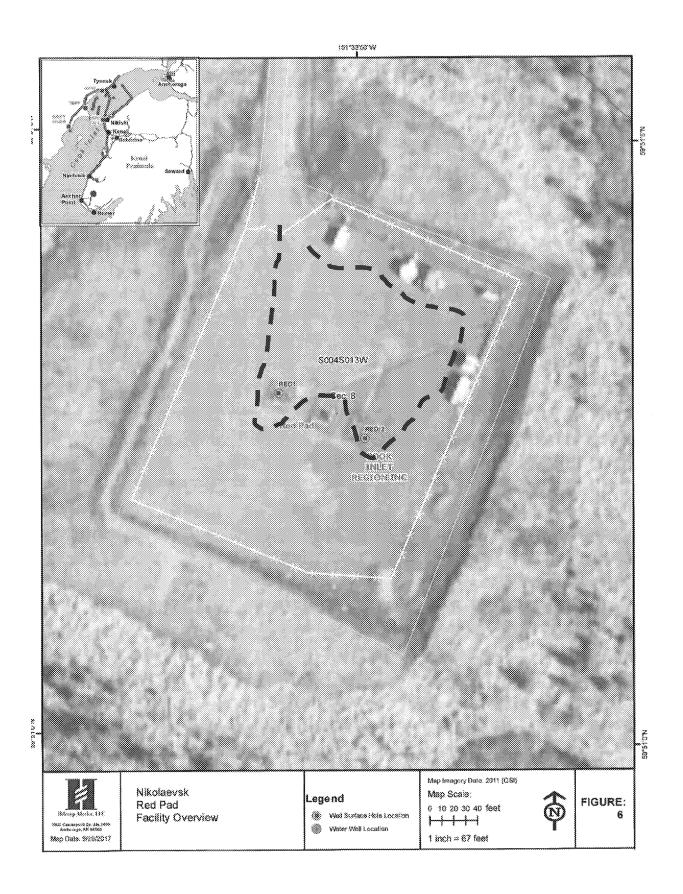
Turn to the left onto Cottonfield Ave

About 5 miles down you will need to lean to the right and go about 2 miles

and there it will dead end at the pad.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





## Ninilchik Unit Kalotsa Pad

Name of Facility: Ninilchik Unit Kalotsa Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

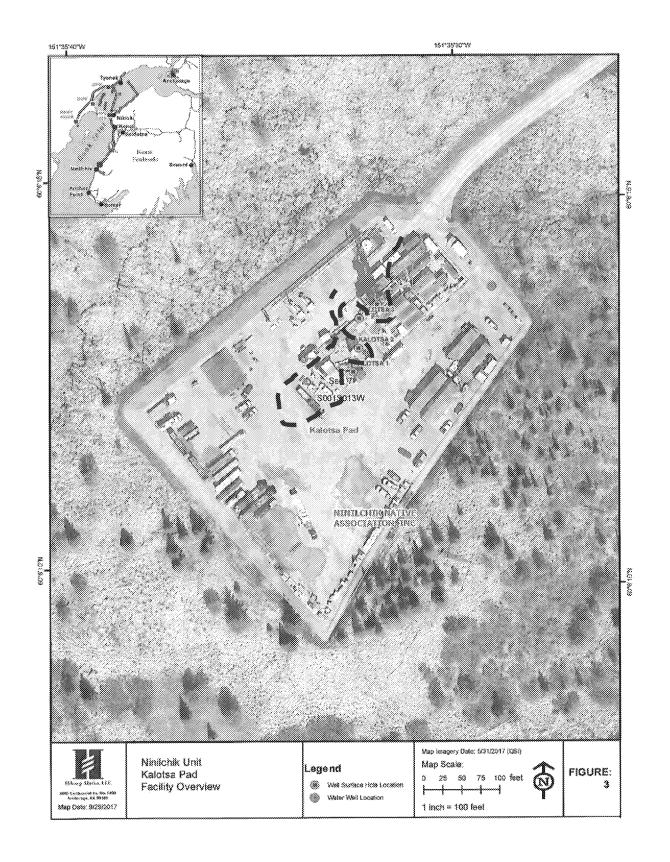
Facility Coordinates: Latitude 60.103417

*Longitude* -151.592446

**Facility Location:** From Ninilchik, drive north to approximately MP 129 of the Sterling Highway.

The Access road will be on the left.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- ☑ Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



## **Swanson River SCU 12-03 Pad**

Name of Facility: Swanson River SCU 12-03 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

**Facility Coordinates:** *Latitude* 60.72768

*Longitude* -150.851259

**Facility Location:** From Kenai, Alaska:

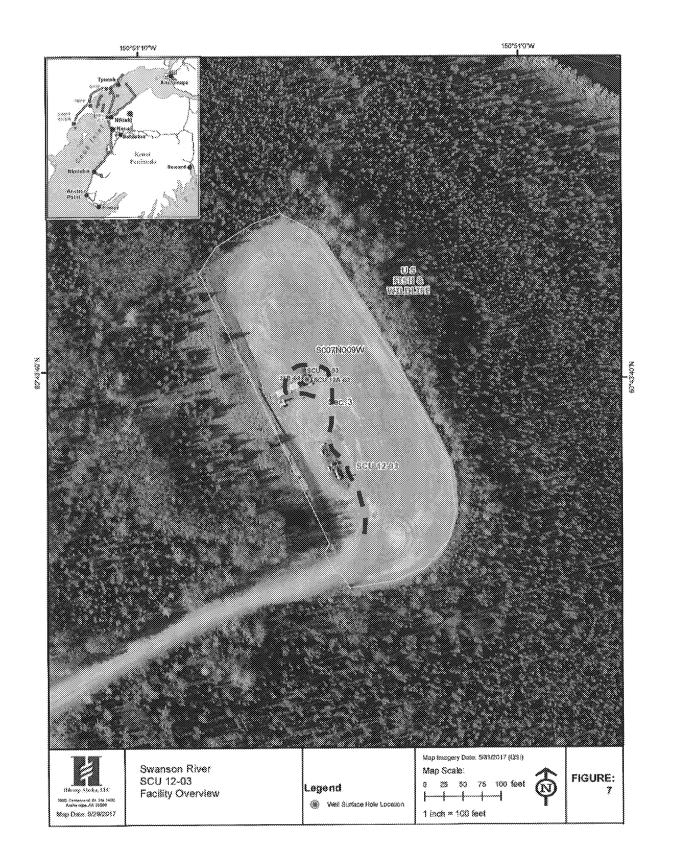
Proceed East on the Kenai Spur Hwy for approximately 10 miles

Turn left onto AK-1 towards Sterling

Proceed for about 10 miles

Turn left onto Swanson River Production Facility Rd.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



## **Swanson River SCU 14-04 Pad**

Name of Facility: Swanson River SCU 14-04 Pad

Borough: Kenai Peninsula

State:AlaskaFacility Type:Well SiteSurveying Frequency:Semiannually

Facility Coordinates: Latitude 60.721145

Longitude <u>-150.878715</u>

Facility Location: From Kenai, Alaska:

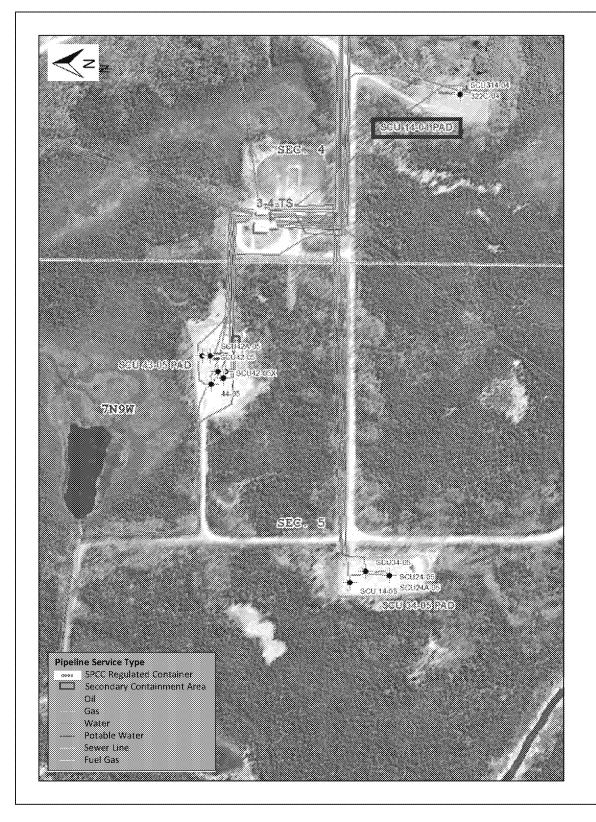
Proceed East on the Kenai Spur Hwy for approximately 10 miles

Turn left onto AK-1 towards Sterling

Proceed for about 10 miles

Turn left onto Swanson River Production Facility Rd.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



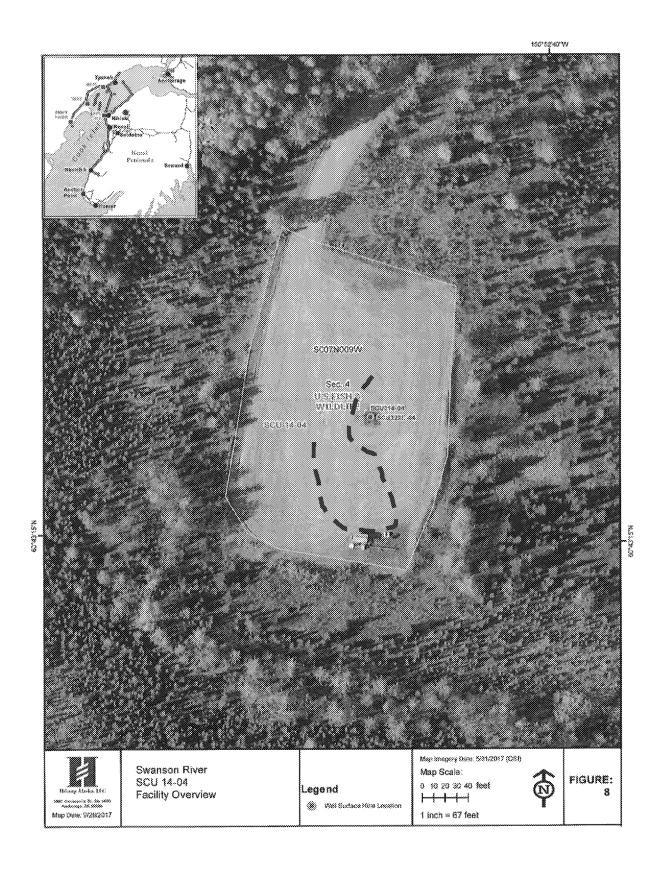
## **SPCC REGULATED CONTAINERS**

NOTE:

ADDITIONAL OIL-FILLED PORTABLE CONTAINERS/TANKS MAY BE STORED OR ACTIVELY USED.

FIGURE 28 - TS 3-4 VICINITY





## **Swanson River SCU 33-33 Pad**

Name of Facility: Swanson River SCU 33-33 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

**Facility Coordinates:** Latitude <u>60.73736</u>

Longitude <u>-150.86280</u>

Facility Location: From Kenai, Alaska:

Proceed East on the Kenai Spur Hwy for approximately 10 miles

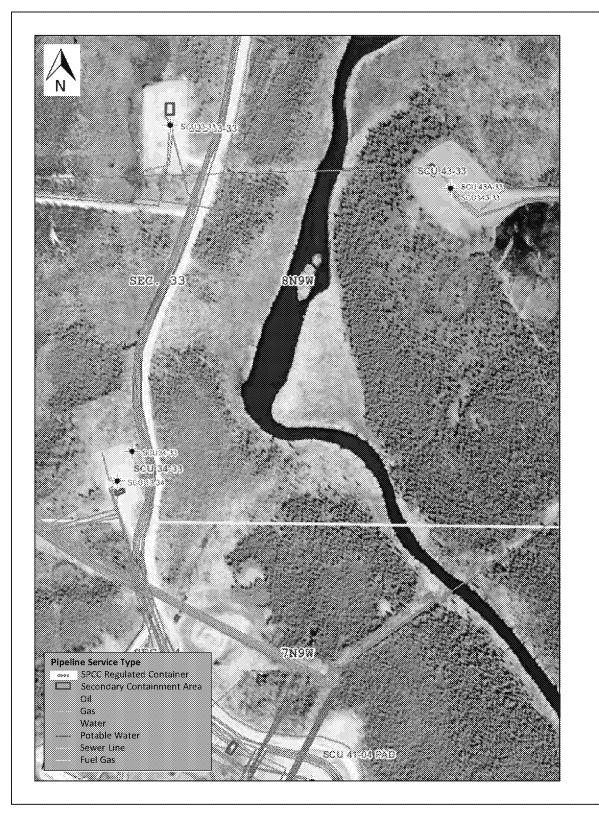
Turn left onto AK-1 towards Sterling

Proceed for about 10 miles

Turn left onto Swanson River Production Facility Rd.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))





## **SPCC REGULATED CONTAINERS**

NOTE:

ADDITIONAL OIL-FILLED PORTABLE CONTAINERS/TANKS MAY BE STORED OR ACTIVELY USED.

FIGURE 15 - SWANSON RIVER FIELD NORTH OF TS 1-4



## **Swanson River SRU 21-33 Pad**

Name of Facility: Swanson River SRU 21-33 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

Facility Coordinates: Latitude 60.746411

Longitude <u>-150.871098</u>

**Facility Location:** From Kenai, Alaska:

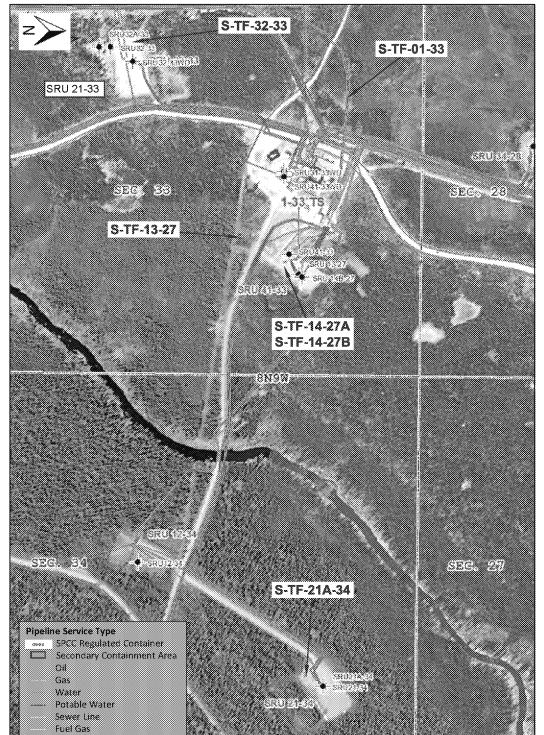
Proceed East on the Kenai Spur Hwy for approximately 10 miles

Turn left onto AK-1 towards Sterling

Proceed for about 10 miles

Turn left onto Swanson River Production Facility Rd.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



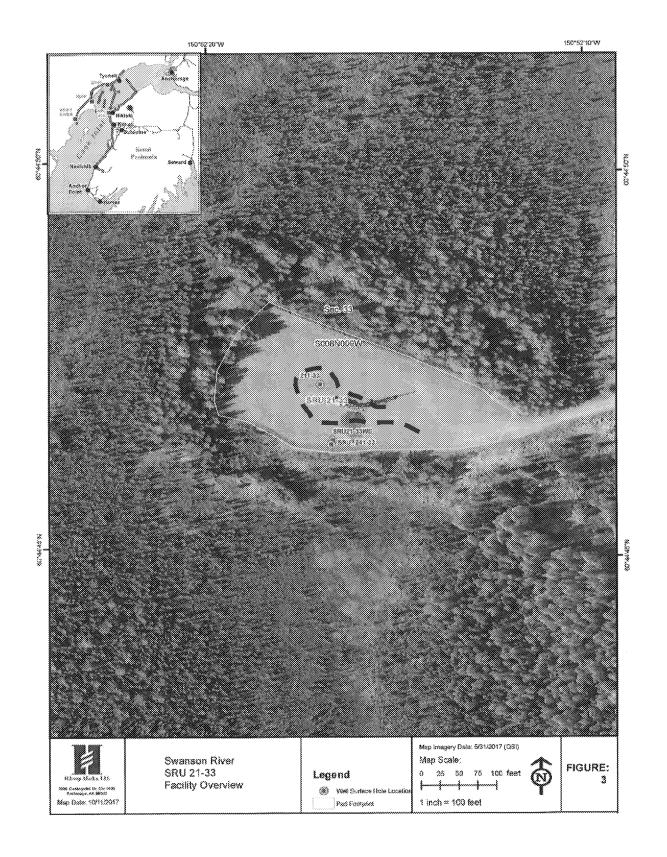
## **SPCC REGULATED CONTAINERS**

EAM # S-TF-13-27	Location Pad 13-27 & 14-27	Name Transformer	Gallons 239	Contents Mineral oil
S-TF-01-33	W of TS 1-33 Pad	Transformers (3)	180	Mineral oil
S-TF-32-33	Pad 32A-33	Transformer	383	Mineral oil
S-TF-14-27A	14-27	Transformer	400	Mineral oil
S-TF-14-27B	14-27	Transformer	312	Mineral oil

Note: Additional oil-filled portable containers/tanks may be stored or actively used.

FIGURE 13 - SWANSON RIVER FIELD PAD 13-27 AND 14-27





## Swanson River SRU 32-15 Pad

Name of Facility: Swanson River SRU 32-15 Pad

Borough: Kenai Peninsula

State: Alaska
Facility Type: Well Site
Surveying Frequency: Semiannually

Facility Coordinates: Latitude 60.78516

Longitude <u>-150.84803</u>

Facility Location: From Kenai, Alaska:

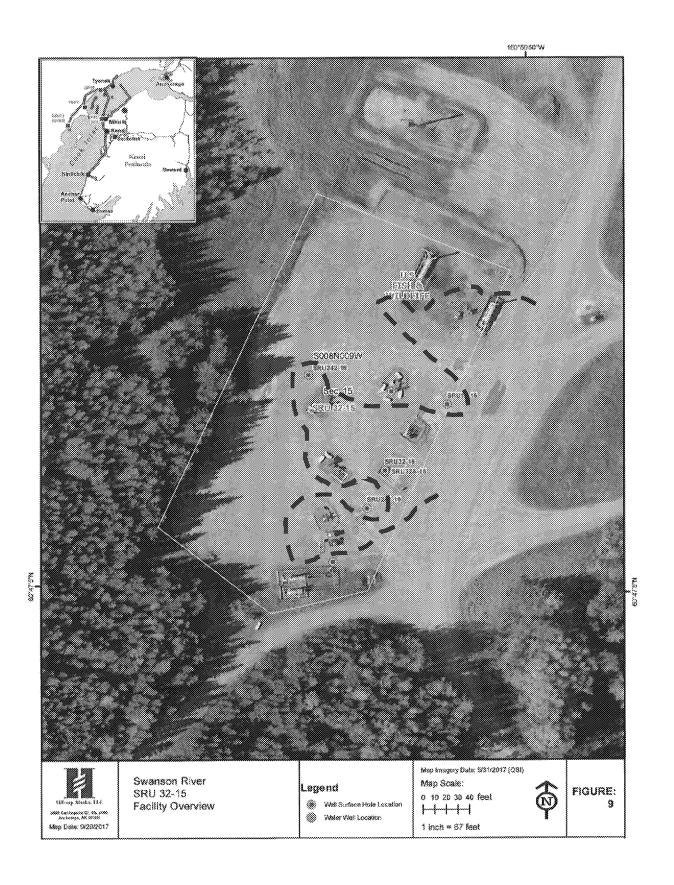
Proceed East on the Kenai Spur Hwy for approximately 10 miles

Turn left onto AK-1 towards Sterling

Proceed for about 10 miles

Turn left onto Swanson River Production Facility Rd.

- ☑ Sitemap Attached (required per 40 CFR 60.5397a(d)(1))
- ☑ Observation Path of Fugitive Emissions Components Included within Sitemap (required per 40 CFR 60.5397a(d)(2))
- oximes Difficult-to-Monitor & Unsafe-to-Monitor Components Attached, as Applicable (required per 40 CFR 60.5397a(d)(4))



# **Appendix C**

Survey & Repair Records